Apple *II* ProDOS User's Manual

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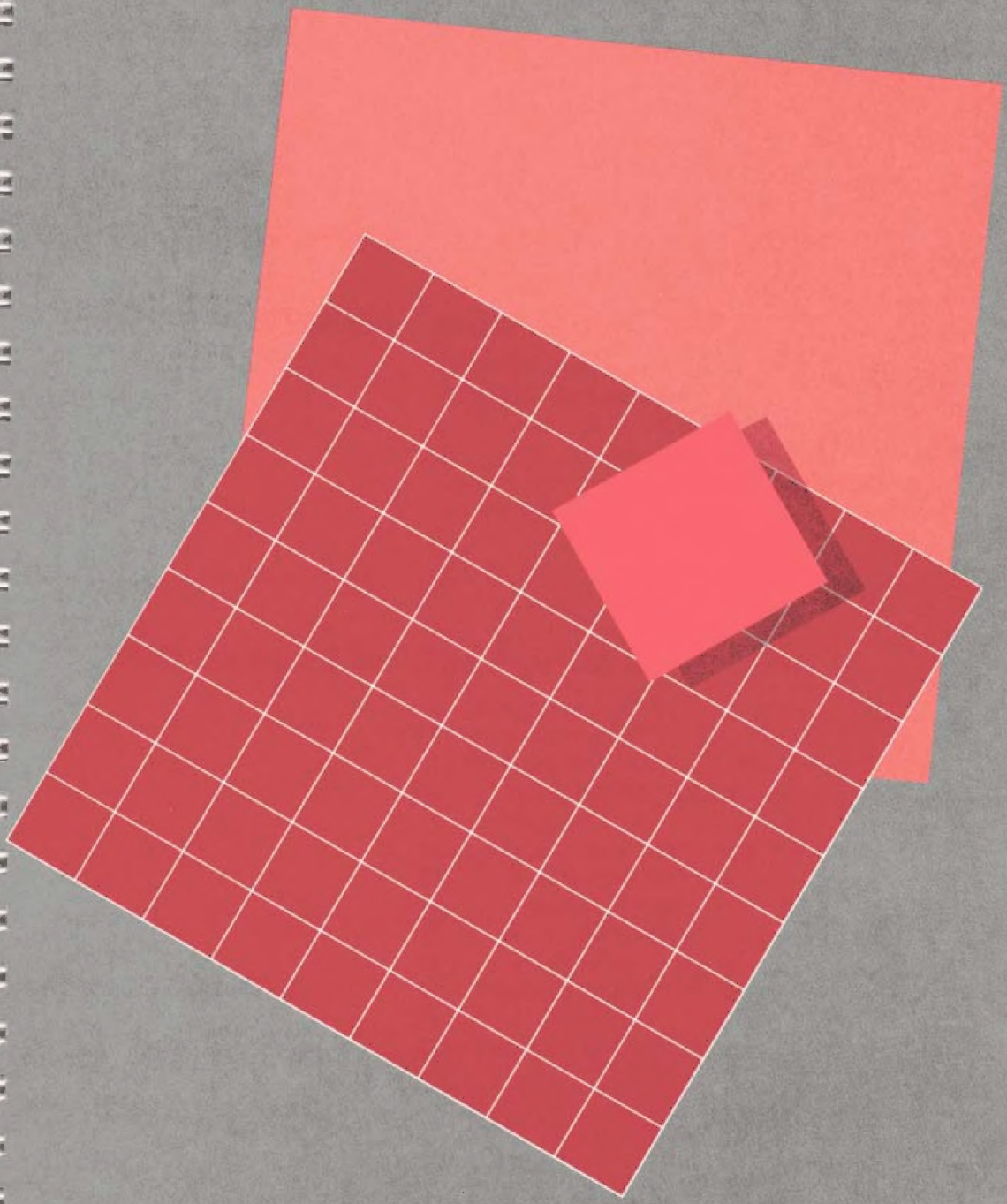
ProDOS User's Manual



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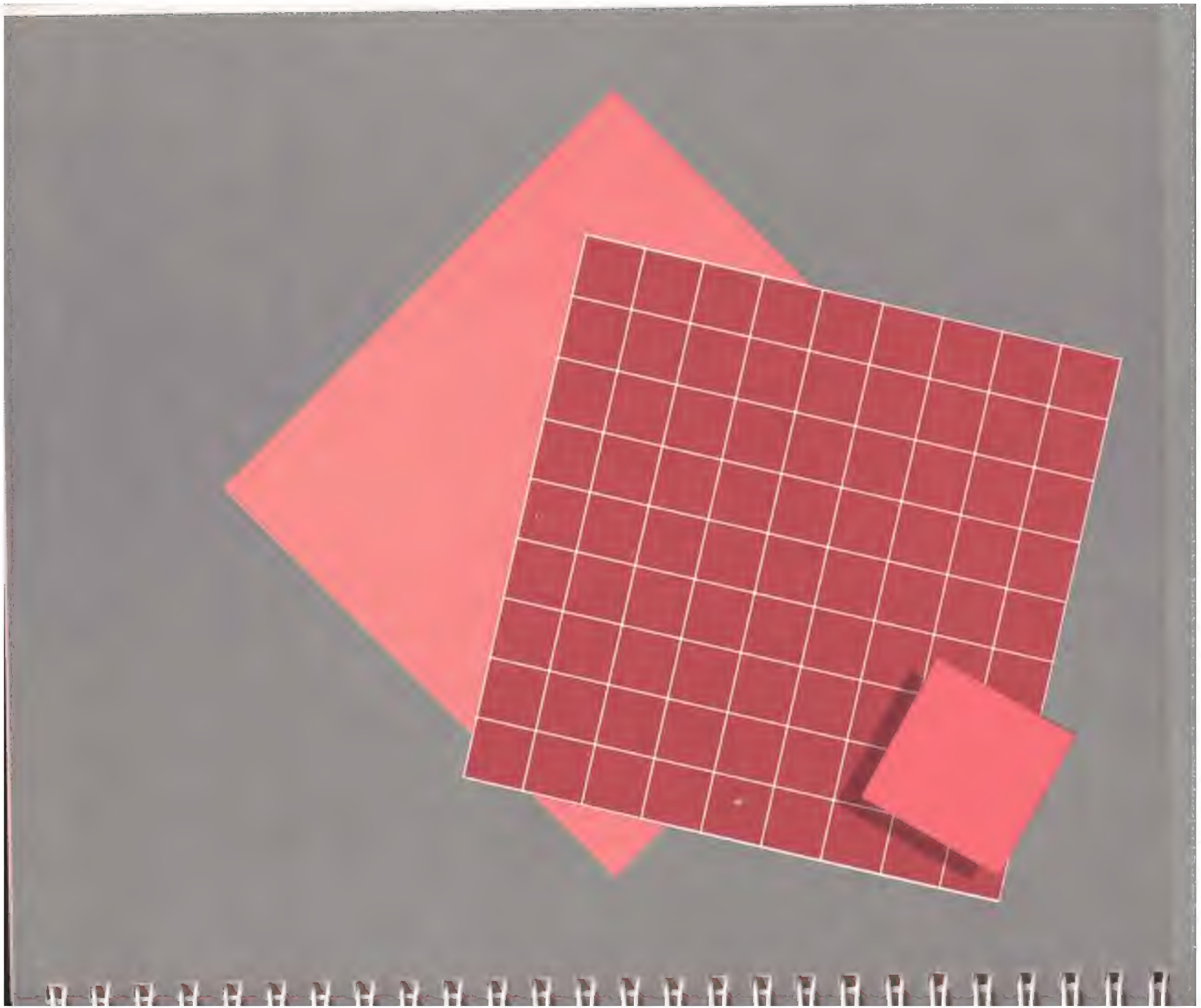


About This Manual

This manual explains how to use the *ProDOS User's Disk*. This disk uses ProDOS™ to manage information on disks. The *User's Disk* is designed so that you can use ProDOS without having to memorize ProDOS commands. If you want to know more about ProDOS, see the *ProDOS Technical Reference Manual* and *BASIC Programming With ProDOS*.

What You Need

To get the most out of this manual, you should have

- an Apple II with **64K RAM** and a **display device**
- at least one disk drive
- the *ProDOS User's Disk*
- two blank disks

64K RAM stands for *64 kilobytes of random-access memory*. A **kilobyte** is 1024 bytes or 8192 bits. A **byte** is eight **bits** and can hold one character.

Random-access memory is memory whose contents you can change.

Your **display device** can be either a television set or a video monitor.

Note: References in this manual to the Apple II refer to the Apple II Plus and the Apple IIe. The *ProDOS User's Disk* will *not* work on an Apple II. This is because Applesoft BASIC must be in ROM (read-only memory) for the disk to work. Also, to use ProDOS, your computer must have at least 64 kilobytes (K) of random-access memory (RAM). Most Apple II computers have 48K or 64K RAM. Some earlier models have 16K or 32K RAM. If you're uncertain as to your Apple computer's memory capacity, consult your Apple dealer.

Read Me Second

Before you start this manual, you should have a working relationship with your Apple II computer and disk drive. That doesn't mean you need to know how to program in four languages, but you should already have your disk drive hooked up to your Apple II; you should know how to put disks into your disk drive; and you should have some familiarity with the Apple II keyboard. If you aren't yet at home with your Apple II, read the introductory material that came with your computer. Then return to this manual.

How to Use This Manual

This manual is divided into three parts. The first part is a brief introduction to the *User's Disk*. Because the *User's Disk* is fairly self-explanatory, this may be the only part of the manual you will need to read.

The second part discusses the ProDOS Filer in detail. If you are not familiar with how a hierarchical file structure works and how to use pathnames, you may want to read Chapters 2 and 4. Chapters 3 and 5 tell you how to use the volume and file commands. These chapters are written so that you may use them just for reference. But don't hesitate to work through the chapters, trying out every command. Chapter 6 is about the default assumptions used by the Filer.

The third part explains how to use the DOS-ProDOS Conversion Program included on the *User's Disk*. This program allows you to convert your DOS 3.3 files to ProDOS files and vice versa.

Practice Makes Perfect

Reading a recipe for whole wheat bread is not the same as mixing the ingredients, kneading the dough, and baking the bread. Similarly, reading about how to copy a file is not the same as actually copying one. Try out each command as you read about it. That's the best way to find out if you understand the material.

Summary Sections

Some people like to race through manuals; others like to take it slow and steady. The skimmers among you will appreciate the summaries at the end of each chapter. Each summary is a digest of all the new commands and vocabulary presented in that chapter.

You may use the summaries as a quick reference or to test your mastery of the material you've just covered. If any of the commands are still hazy, it's a clue to go back and review before tackling new material. If you're an old hand with computers and disk operating systems, the summaries may be all the instruction you need.

Visual Aids

As you use this manual, you'll notice that typeface and shading have special meanings.

See the margin for notes on a **boldface** term.

Computer terms and words with which you may not be familiar appear in **boldface.** A special type is used for what you type and what you see on the display: `it looks like this`.

When you see a hyphen joining two keys, it means to press the keys simultaneously. For instance, CONTROL-RESET means you should press CONTROL and RESET at the same time. In actual practice, you probably will press CONTROL first and then, while still holding down CONTROL, press RESET.

By the Way: Helpful hints and interesting sidelights appear in gray boxes like this one.

Note: Important information or concepts appear in gray boxes like this one.

Warning

Warnings about potential problems and advice about how to avoid them appear in boxes like this one.

Read the marginal notes for quick reference.

You'll also find notes in the margin that emphasize a point, define terms, or refer you to related information in another part of the book.

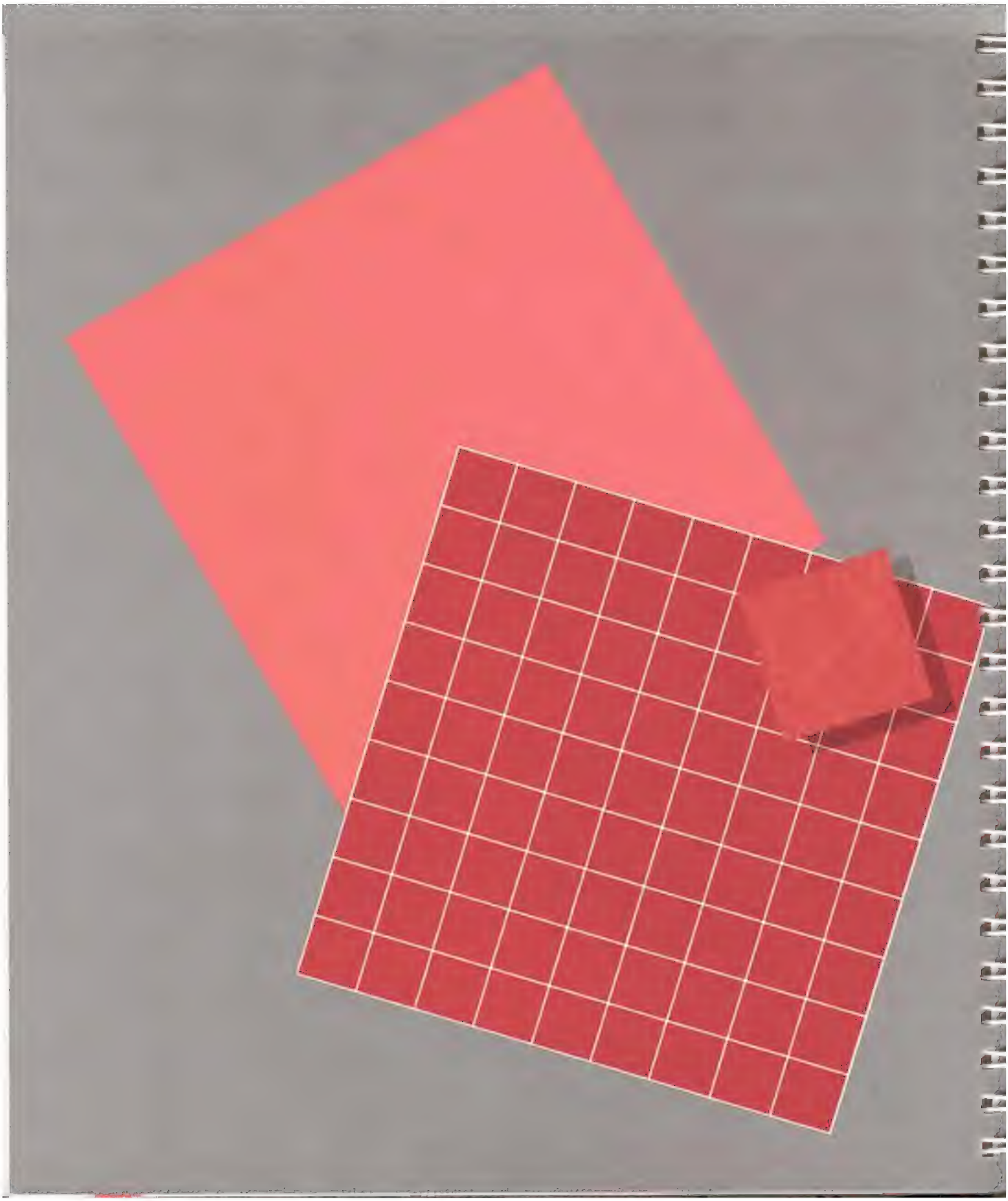
Part I

Introduction

The *ProDOS User's Disk* uses ProDOS and a set of programs to help you manage the information on your disks. But you don't have to learn ProDOS commands or know anything about programming because the *User's Disk* does all the work for you. Part I is an introduction to using this disk.

Chapter 1

The ProDOS User's Disk



The ProDOS User's Disk

A **disk** can be either rigid or flexible. A **flexible,** or **floppy,** disk is a thin, flexible circle of magnetized material. A **rigid,** or **hard,** disk is made of rigid, nonflexible magnetized material. The magnetized material is where information is stored, much as music is recorded on magnetic tape.

ProDOS stands for *Professional Disk Operating System.* It differs from the previous Apple II disk operating system (DOS 3.3) in its ability to use drives for **rigid disks**, such as the ProFile™, as well as drives for **flexible disks**.

Note: References in this manual to the Apple II refer to the Apple II Plus and the Apple IIe. The *ProDOS User's Disk* will *not* work on an Apple II. This is because Applesoft BASIC must be in ROM (read-only memory) for the disk to work. Also, to use ProDOS, your computer must have at least 64 kilobytes (K) of random-access memory (RAM). Most Apple II computers have 48K or 64K RAM. Some earlier models have 16K or 32K RAM. If you're uncertain as to your Apple computer's memory capacity, consult your Apple dealer.

Note: A **disk operating system** controls the operation of your disk drives. It prepares disks to receive information, maintains a disk directory that organizes all the information on the disk, allows you to copy disks, lets you move information from disk to disk, and helps you perform many other chores. DOS is pronounced like *boss.*

Getting Started

The *ProDOS User's Disk* is a menu-driven disk. This means that your options are presented to you through a series of menus.

If you haven't done so already, put your *User's Disk* in drive 1 and turn on your computer system. You'll see the display shown in Figure 1-1.

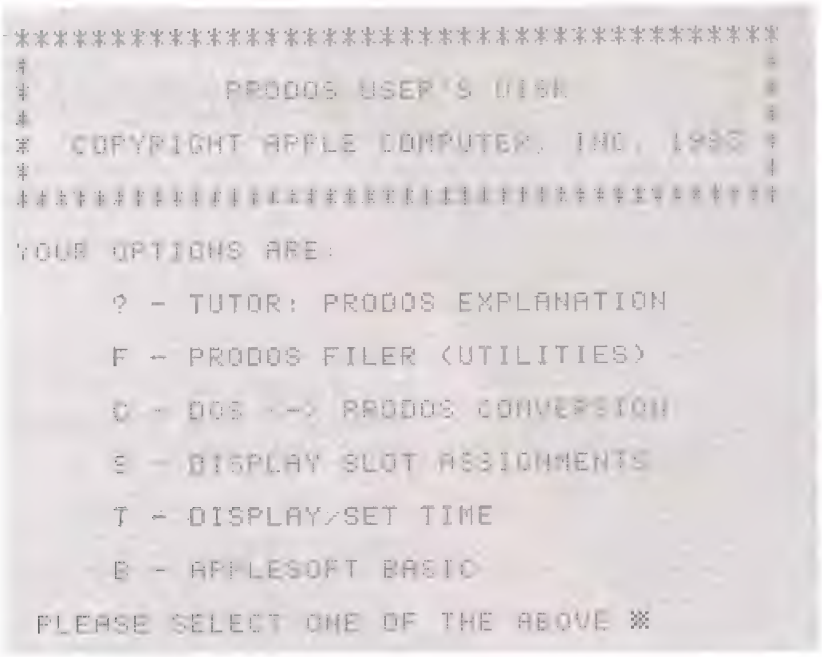


Figure 1-1. The *ProDOS User's Disk* Startup Display: The Main Menu

How Menus Work

If you are familiar with menu-driven programs, you probably know what to do. If you're new to computer menus, consider this analogy:

You've just pulled into Eddie's All-Night Eats on Highway 5. A waiter shuffles over and hands you a breakfast menu that reads

EGGS
JUICE
TOAST
COFFEE

You order eggs. Eddie realizes, from your answer, that you're not a regular at his truck stop, so he outlines your egg options.

"Do you want your eggs scrambled, fried, or poached?" he asks.

It's as if there was a menu within a menu. If you had ordered juice, you would have had a choice of orange, tomato, or prune. If you had ordered toast, you could have had white, wheat, or rye bread.

The Main Menu of the *User's Disk* is set up much the same way, except that when you make a selection, you don't have to rely on anyone's memory to find out what's on the next menu. Everything is spelled out for you. That's the beauty of a menu-driven program. It's so easy to use that you could almost get by without a manual!

The User's Disk Main Menu

Now that you know how computer menus work, take a look at the options on the Main Menu of the *User's Disk*.

Here, instead of food, your options are

- ? - TUTOR: PRODOS EXPLANATION
- F - PRODOS FILER (UTILITIES)
- C - DOS (-) PRODOS CONVERSION
- S - DISPLAY SLOT ASSIGNMENTS
- T - DISPLAY/SET TIME
- B - APPLESOFT BASIC

When you select an option from the Main Menu, you type the letter that precedes the option you want. You do *not* need to press (RETURN). The Main Menu will disappear, and you'll see—depending upon the option you choose—a Tutor display, another menu, or an informational display.

A Note About Error Messages: Occasionally, you'll type a number when you meant to type a letter, or you'll send your computer off in search of a disk that's nowhere near your disk drive. When this sort of thing happens, you'll hear a beep alerting you to some failure in the communication process. When you hear such a beep, check the display for an error message.

If you're not sure what the error message means or what to do about it, consult Appendix A, "Error Messages."

The following sections briefly explain each of the elements of the Main Menu. For now, just read this information.

Tutor: ProDOS Explanation

The Tutor display that you get from this menu tells you what an operating system does and why you need to know a little about the DOS operating system as well as about the ProDOS operating system. All of the menus on the *User's Disk* offer a Tutor option. Each Tutor display gives specific information about the part you are using.

ProDOS Filer

The ProDOS Filer is a program that uses ProDOS to allow you to organize the information you store on disks. This is the option you'll use more than any other. The Filer has one group of commands, called **volume commands,** that works with the disk as a whole and another group of commands, called **file commands,** that works with individual files. Together, these commands are often referred to as *utilities* because they let you *use* your computer.

See Chapter 3 for how to use the **volume commands.**

See Chapter 5 for how to use the **file commands.**

Note: A **file** is a small body of information—like a business report or a budget—on a disk. A **volume** is a collection of files. Terminology relevant to the file and volume commands is presented in Chapters 2 and 4.

If the definition of a ProDOS term or any other computer-specific word is not in the margin or the text, check the Glossary.

When you choose the Filer option, you'll see another menu, shown in Figure 1-2.

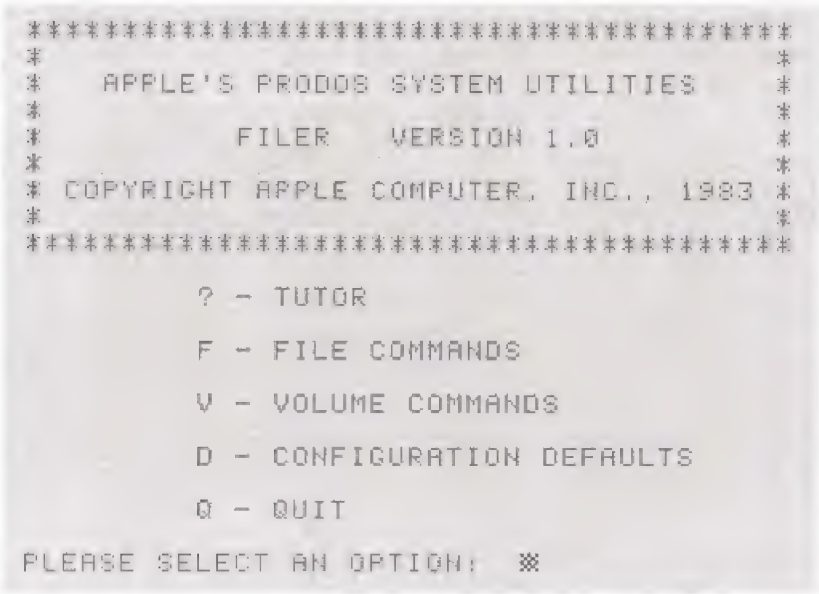


Figure 1-2. The Filer Menu

Whether you use your Apple computer for word processing, financial modeling, programming, or hobgoblin games, you will need to organize the files on your disks. The ProDOS Filer exists for that purpose—organizing. There are Filer commands for preparing disks to receive the files you create, for copying files from one place to another, and for deleting files you don't need anymore.

Important! If you change the prefix while using the Filer, you should send the prefix back to the name of your startup disk before leaving the Filer for another part of the *ProDOS User's Disk*.

Put the *User's Disk* (or your startup disk) in drive 1 and then select the Set Prefix option on the File Command Menu.

Part II discusses the ProDOS Filer in detail.

DOS-ProDOS Conversion

When you choose the DOS-ProDOS Conversion option, you get a program named CONVERT. The CONVERT Menu is shown in Figure 1-3.

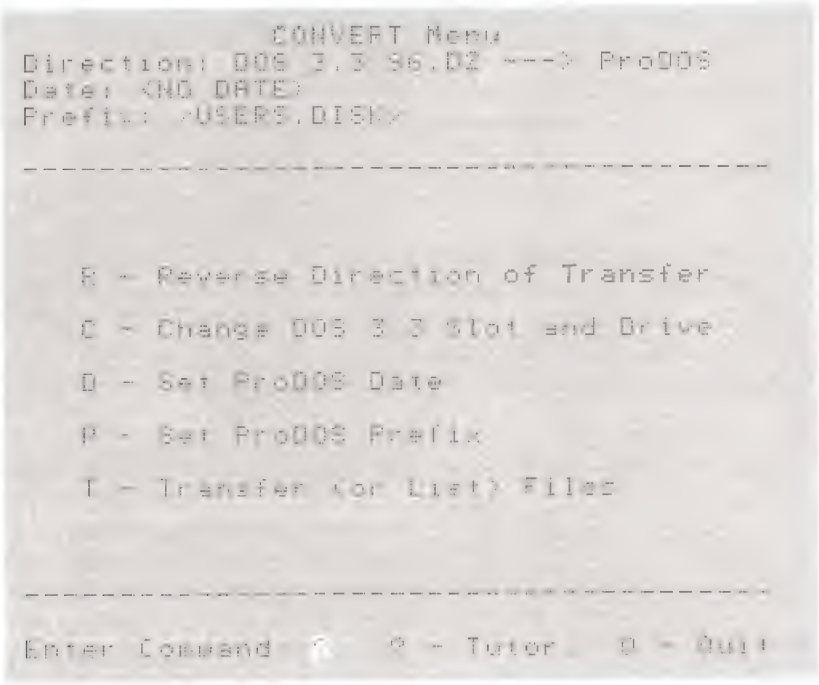


Figure 1-3. The DOS-ProDOS Conversion Program: The CONVERT Menu

The CONVERT program lets you convert DOS 3.3 files to ProDOS files and vice versa.

If you have been using any games or application programs based on DOS 3.3, you must use this program before you can use the game or application program with ProDOS.

Important! If you change the prefix while using CONVERT, you should send the prefix back to the name of your startup disk before moving to another part of the *ProDOS User's Disk*.

Put the *User's Disk* (or your startup disk) in drive 1 and then select the Set ProDOS Prefix option.

Part III explores this program in detail.

The **startup disk** is the one you use to get ProDOS running.

A **peripheral card** is a removable printed-circuit board that plugs into an expansion slot and expands or modifies the computer's capabilities.

An **expansion slot** is a long, narrow connector inside the Apple II in which a peripheral card, such as a disk controller card, can be installed.

Figure 1-4. The Slot Assignments Display

A **disk controller card** is a peripheral card that connects one or two disk drives to the Apple II and controls their operation.

Display Slot Assignments

The Display Slot Assignments option gives you information about the computer system you are using. When you select this option, you'll see the name of the **startup disk,** how much memory your Apple computer has, and a display similar to Figure 1-4. The display shows you which **peripheral cards** you have in each **expansion slot.**

```
*****************************************
*                                       *
*      DISPLAY SLOT ASSIGNMENTS         *
*                                       *
*****************************************

STARTUP DISK:  /USERS.DISK

YOUR Apple //e HAS:

    64K OF RANDOM ACCESS MEMORY

    APPLESOFT IN ROM

    SLOT 1:  SILENTYPE
    SLOT 2:  EMPTY
    SLOT 3:  80-COLUMN CARD
    SLOT 4:  THUNDERCLOCK
    SLOT 5:  PROFILE
    SLOT 6:  DISK DRIVE
    SLOT 7:  EMPTY

PRESS RETURN TO DISPLAY MAIN MENU
```

Of course, the information you see on your display may be different from that shown in Figure 1-4, depending on what you have connected to your computer. You might want to make a note of the number of the slot that holds your **disk controller card.** You'll need to use this number again and again.

Display/Set Time

An **integrated circuit** is an electronic component that has many circuits on a single piece of semiconducting material, such as silicon—often called a **chip**, although the chip is just the piece of silicon.

If you don't have one of the peripheral cards or **integrated circuits** installed in the computer that keeps time for you, the Display/Set Time option lets you set the date and time manually.

When you choose this option, you see the display shown in Figure 1-5.

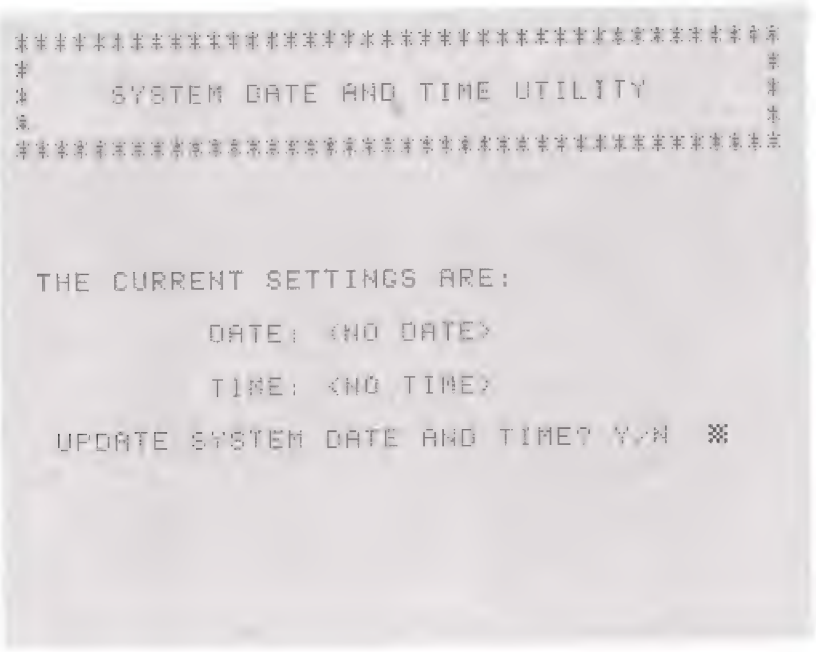


Figure 1-5. The Time and Date Display

Many of the utilities on the *User's Disk* record the date and time when you use them. This is especially useful when you are saving different versions of something and want to remember the sequence.

Applesoft BASIC

Selecting the Applesoft BASIC option puts you into BASIC. Unless you are familiar with programming, you probably won't be selecting this option. However, if you do, and want to get back to the *User's Disk* Main Menu, type

```
RUN STARTUP
```

For an explanation of why you type this, see the section "How It Works."

as shown in Figure 1-6.

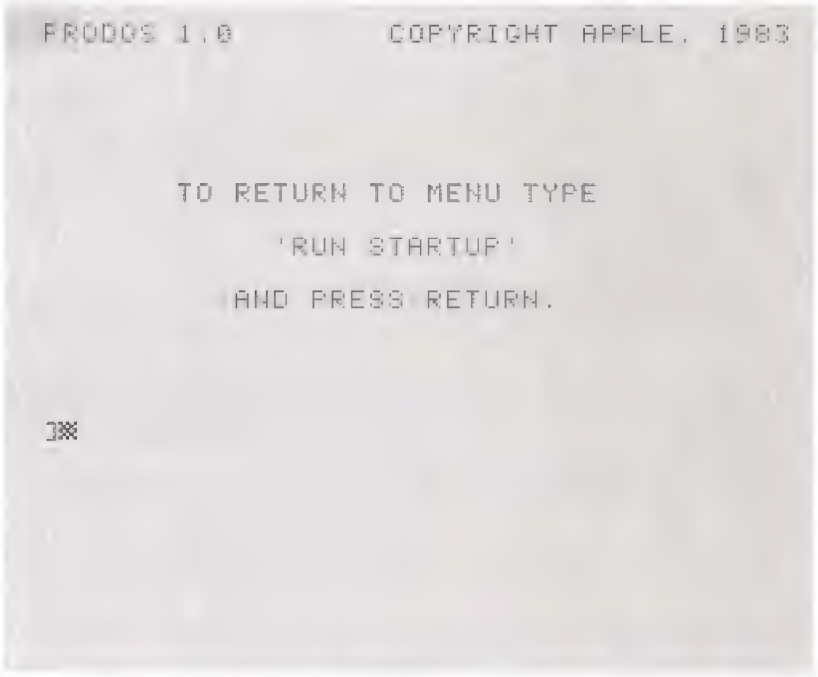


Figure 1-6. Applesoft BASIC

For more information, see *BASIC Programming With ProDOS*.

The Prompt

A **prompt** is a message from the program that asks you for information.

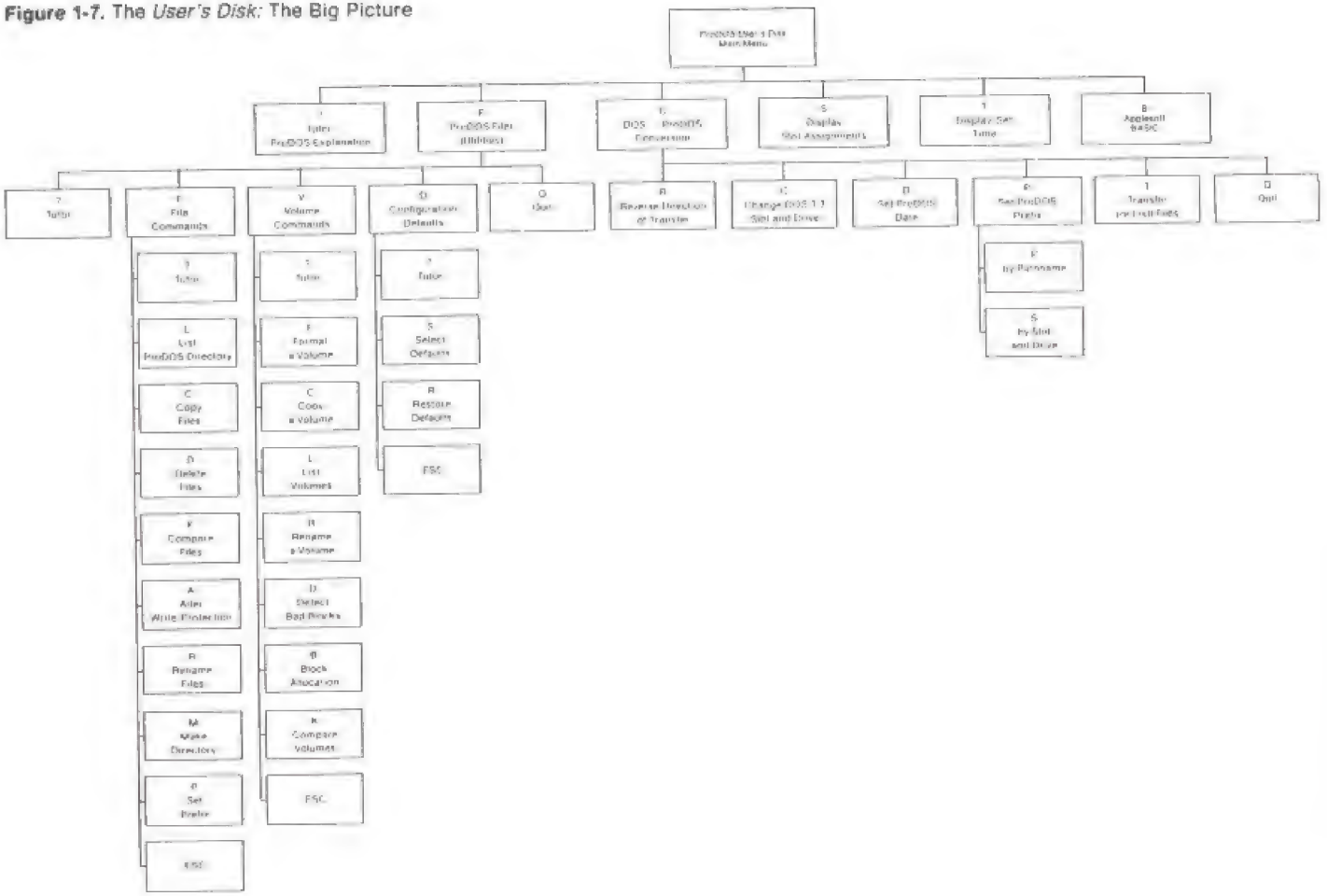
The last line on the menu is called a **prompt**; it's there to remind you to do something. On the *User's Disk* Main Menu, you see this prompt:

```
PLEASE SELECT ONE OF THE ABOVE
```

In other words, to select one of the options from the Main Menu, you simply type the character corresponding to your choice.

The prompts vary, as you'll soon see, but they are there to make your life easier. If you forget what you're supposed to do at any given time, consult the prompt.

Figure 1-7. The *User's Disk:* The Big Picture



The Big Picture

From the Main Menu, you can take many paths through the *ProDOS User's Disk.* For those of you who like to see the big picture, Figure 1-7 is a map to your choices. If you find this sort of diagram overwhelming, don't despair: you will only work with one display at a time, and there's a prompt at the bottom of each display that outlines your options.

How It Works

A **system program** makes the computer available for general purposes.

The *User's Disk* is a collection of **system programs.** These programs are named

PRODOS
BASIC.SYSTEM
STARTUP
FILER
CONVERT

Main memory is the part of the Apple II computer that is used to store information.

However, not all of these programs can fit into the **main memory** of the Apple II at the same time.

When you start your computer with the *User's Disk* in drive 1, several things happen:

1. The system program named PRODOS, containing the most sophisticated parts of ProDOS, is put into memory.
2. The system program named BASIC.SYSTEM is also put into memory.
3. Applesoft BASIC looks for a program named STARTUP. If it finds one, it runs that program. In the case of the *User's Disk*, the STARTUP program is the Main Menu.

The end result is that you see the Main Menu of the *User's Disk*. When you select the ProDOS Filer (Utilities) or the DOS-ProDOS Conversion options from the Main Menu, the system program for those options takes the place of BASIC.SYSTEM and STARTUP in memory.

That's why the Filer Menu and the CONVERT Menu have Quit options. When you choose to quit, you see the Quit display shown in Figure 1-8.

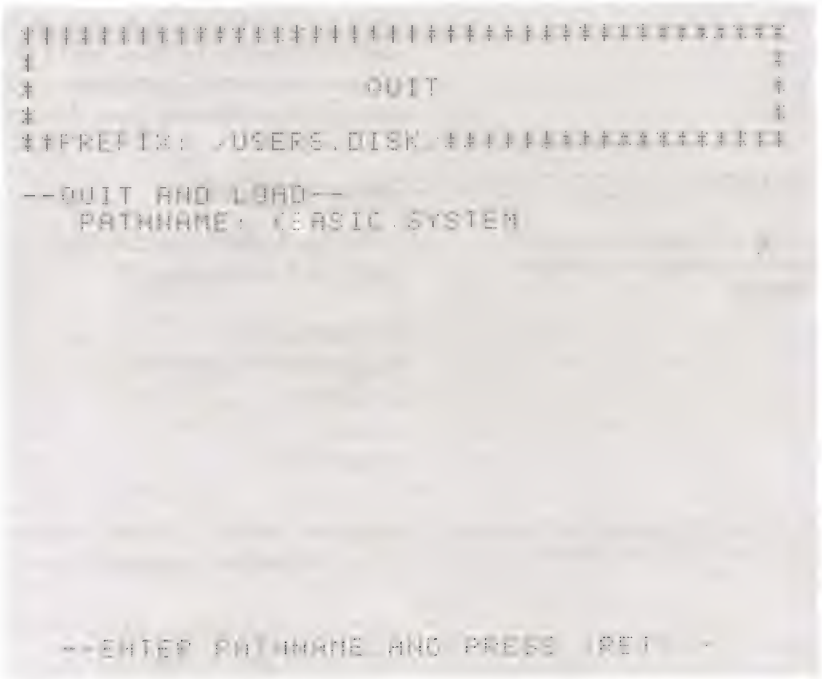


Figure 1-8. The Quit Display of the ProDOS Filer

You use this display to put the BASIC system program back into memory and run the STARTUP program, which is the Main Menu of the *User's Disk*.

This may sound complicated, but all you have to do is accept the **default** whenever you quit the Filer or the Conversion Program.

A **default** is the computer's best guess at what you are about to do next. If the computer is correct, just press (RETURN).

Figure 1-9 illustrates how ProDOS shifts the programs that make up the *User's Disk* in and out of memory. ProDOS is the hub of the disk and is always in memory. When you start up your computer, BASIC.SYSTEM and STARTUP are automatically put in memory. When you shift to the Filer, that program (FILER) replaces BASIC.SYSTEM and STARTUP in memory. When you shift to the Conversion program, CONVERT replaces BASIC.SYSTEM and STARTUP in memory. When you quit either the Filer or the Conversion program, BASIC.SYSTEM and STARTUP are put back in memory and you return to the Main Menu.

Figure 1-9. How the *User's Disk* Works

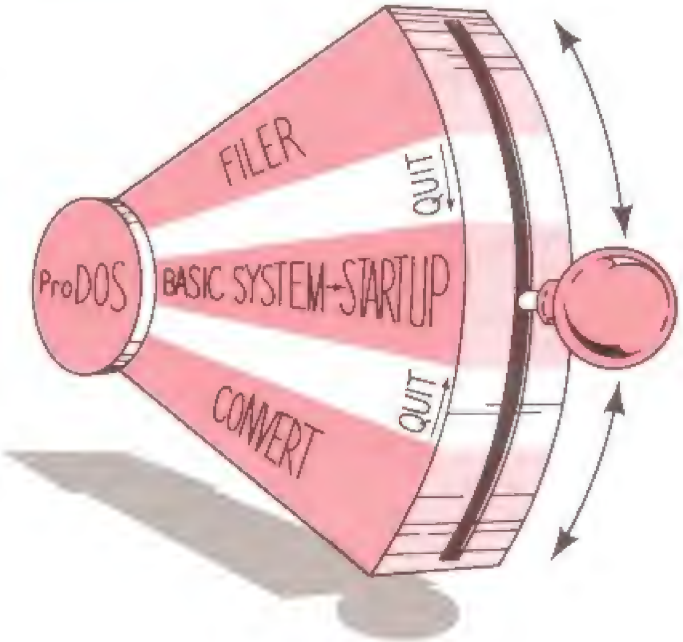
PRODOS holds the sophisticated ProDOS features.

BASIC.SYSTEM holds most ProDOS commands.

STARTUP holds the *User's Disk* Main Menu.

FILER holds the ProDOS Filer (Utilities).

CONVERT holds the DOS-ProDOS Conversion Program.



Summary of Chapter 1

Menus: Give you a list of choices. You communicate your choice by typing the key associated with that choice.

***User's Disk* Main Menu:** Offers six options.

```
? - TUTOR: PRODOS EXPLANATION
F - PRODOS FILER (UTILITIES)
C - DOS 3.3 <-> PRODOS CONVERSION
S - DISPLAY SLOT ASSIGNMENTS
T - DISPLAY/SET TIME
B - APPLESOFT BASIC
```

Tutor: If you press [?], you get a display with information and hints outlining your options.

Prompt: Appears at the bottom of each display to remind you of your options.

The ProDOS Filer

The ProDOS Filer is designed to help you organize the information you store on disks. You'll use the Filer more than any other part of the *User's Disk*.

The Filer commands let you prepare disks to receive information, copy whole disks, copy files from one place to another, delete files you don't need anymore, and accomplish many other utilities.

The Filer Menu

The Filer Menu has five options you can choose from:

- Tutor
- File Commands
- Volume Commands
- Configuration Defaults
- Quit

The five chapters in Part II discuss the main part—file commands, volume commands, and configuration defaults—of the Filer in detail.

You see the Tutor displays by pressing [?]. The Tutor gives you information about the Filer commands and defines terminology that may be unfamiliar to you.

Volume commands are those that affect the entire disk. Chapter 2 presents background information, definitions, and naming conventions for **volumes.** Chapter 3 gives you the practical information for using each of the commands.

A **volume** is another name for a disk, either flexible or rigid. It is a collection of files.

A **file** is a collection of information stored on a disk.

A **pathname** is the path the computer takes to find a file. It always begins with the name of the volume and ends with the name of the file.

Wildcards can be a handy shortcut to file handling.

File commands are those that affect individual files. Chapter 4 presents background information on filenames, directories, and pathnames. You'll want to read this chapter if you aren't familiar with **files** and **pathnames.** Chapter 4 also explains how the hierarchical file structure of ProDOS works and how to use **wildcards** with the file commands. Chapter 5 gives you the practical information for using each of the commands.

Chapter 6 explains configuration defaults and the commands that allow you to customize the defaults to match your system setup.

See "How It Works" in Chapter 1 for an explanation of the Quit display.

You will use the Quit option when you want to return to the Main Menu of the *User's Disk*. When you choose this option, accept the default answer on the Quit display, by pressing RETURN, to return to the Main Menu.

The Filer Displays

You will need to provide some information on many of the displays you'll encounter as you use ProDOS Filer.

A **default** is provided by the computer.

The Filer usually supplies an answer for you. This answer is the program's best guess. It is called a **default** because the answer is used by default if you don't change it.

To accept a default as is, press RETURN.

The **cursor** marks where the next character you type will appear on the display.

To change the default, type over the character or string of characters that appears on the display. If it's a string of characters, such as a pathname, press RETURN when the **cursor** is at the end of the string. This indicates that you've completed your entry. If it's a single character response, such as a slot number, you don't need to press RETURN.

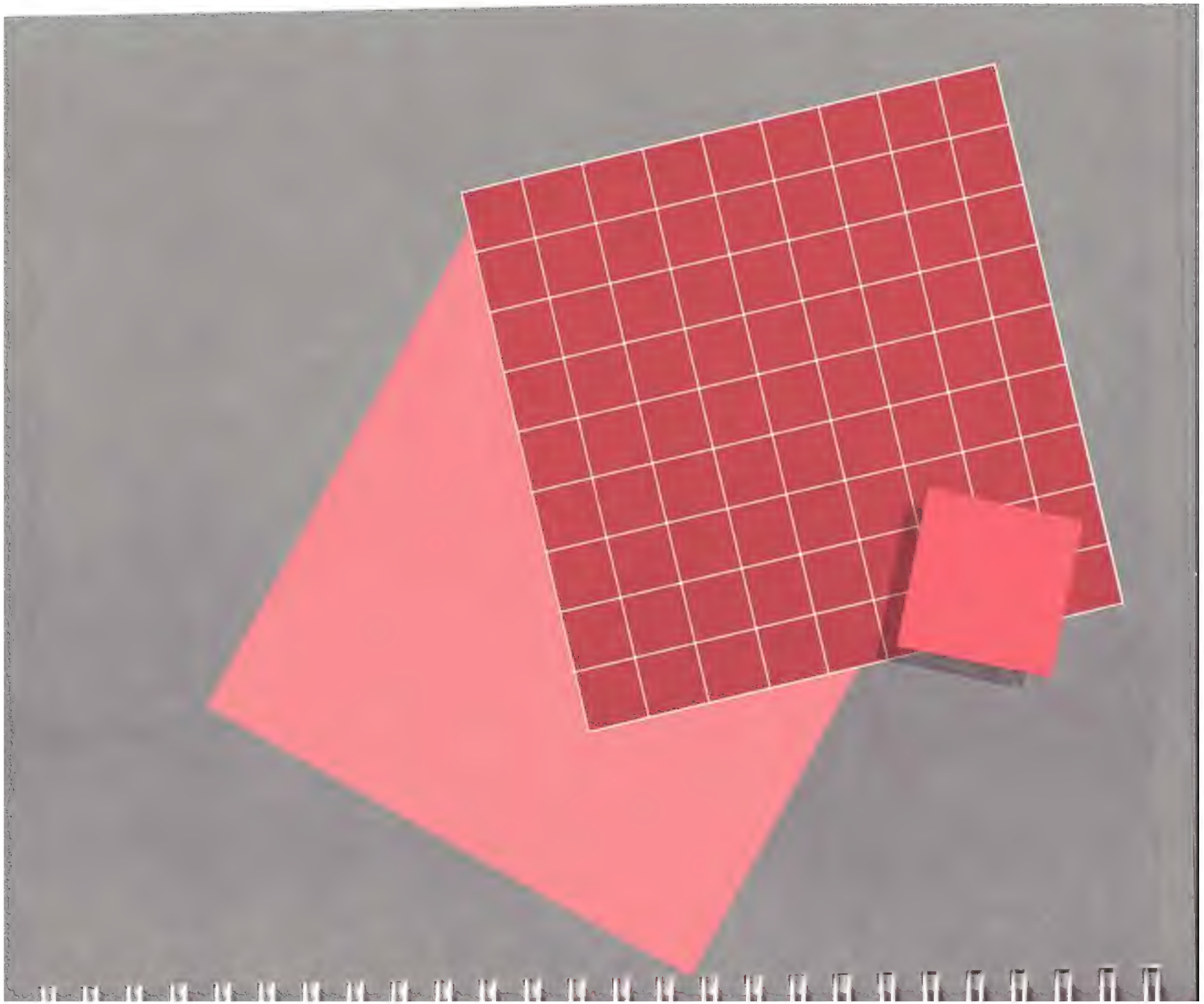
To edit a string of characters, press → to move the cursor over the characters you want to accept and type over the characters you want to change. You cannot insert characters into the string.

If you make a mistake while typing a string of characters, you can press ← and move the cursor back to where you want to make the correction. But don't forget to press → to get back to the end of the string before pressing RETURN.

Note: Once you are in the Filer, you can return to the previous menu by pressing ESC.

Chapter 2

About Volumes, Slots, and Drives



About Volumes, Slots, and Drives

Chapter 3 discusses how to use each of the volume commands.

One of the five options on the Filer Menu is Volume Commands. This group of commands works with the entire disk. This chapter provides some background information on volumes, slot numbers, and drive numbers—the stuff of which volume commands are made.

The **ProFile** is a mass storage device manufactured by Apple Computer, Inc. It holds information equivalent to dozens of flexible disks on two nonremovable rigid disks.

Volume is another term for *disk*, just as *canine* is another term for *dog*. The volume most commonly used with an Apple II is the flexible, or floppy, disk. But the term *volume* can also apply to rigid disks, like the **ProFile.** Because you can use ProDOS commands on flexible and rigid disks, *volume* is used to refer to those commands that allow you to format, copy, alter, and otherwise scan whole disks at one time.

If you have trouble thinking of disks as volumes, look at it this way:

Volume is a word associated with books. Encyclopedias come in volumes. *The Rise and Fall of the Roman Empire* comes in volumes. It's a handy way of dividing information into manageable chunks. So it's not surprising that computer libraries also come in volumes.

Think of each flexible disk as one volume in your computer library.

A ProFile is a volume too, but its capacity is so great (one five megabyte ProFile disk equals 35 flexible disks) that it's like getting a whole encyclopedia in one volume.

Naming Volumes

Like books, volumes are identified by name. You can be as creative as you like when you name your volumes, but you must observe some rules.

Volume names must

- begin with a slash, then a letter.
- be made up of letters, numbers, or periods.
- not have any spaces or punctuation characters other than periods.
- not exceed 15 characters (not counting the slash).

Here are some acceptable volume names:

/USERS.DISK	The name of the disk you're using right now.
/RISE.AND.FALL	Notice how periods are a convenient substitute for spaces.
/LETTER.7.29	You can use numbers, too.

Here are some unacceptable names:

/THE.RISE.AND.FALL.OF.THE.ROMAN.EMPIRE	Too long
/RISE AND FALL	Spaces aren't allowed.
/3.PENNY.OPERA	You can't start a volume name with a number.

By the Way: If you forget and try to enter an unacceptable name, no harm's done. The Filer won't accept an invalid name.

Slot and Drive Numbers

You'll be identifying the volume you want to use for a particular operation by its slot and drive number. (If you have a ProFile, you'll only be asked for the slot number).

Slot Numbers

When a program asks you to supply the slot number for a given volume, it's really just asking you for that volume's address. But you can't supply the address unless you know how your disk drive is hooked up to your computer. So take a minute to review the way that disk drives are connected to cables, the way cables are connected to controller cards, the way controller cards are connected to computers, and what all this has to do with volume commands.

External storage devices, like drives for flexible disks and ProFiles, are attached to your computer by cables connected to **controller cards** (printed-circuit boards) plugged into narrow connectors on the **main logic board** inside your computer. Those connectors are called **expansion slots,** and they're clearly numbered.

A **controller card** is a peripheral card that controls the operation of a peripheral device, such as a disk drive or a printer.

The **main logic board** is a circuit board into which various integrated circuits and printed-circuit boards are plugged.

An **expansion slot** is a long, narrow connector in which a peripheral card can be installed.

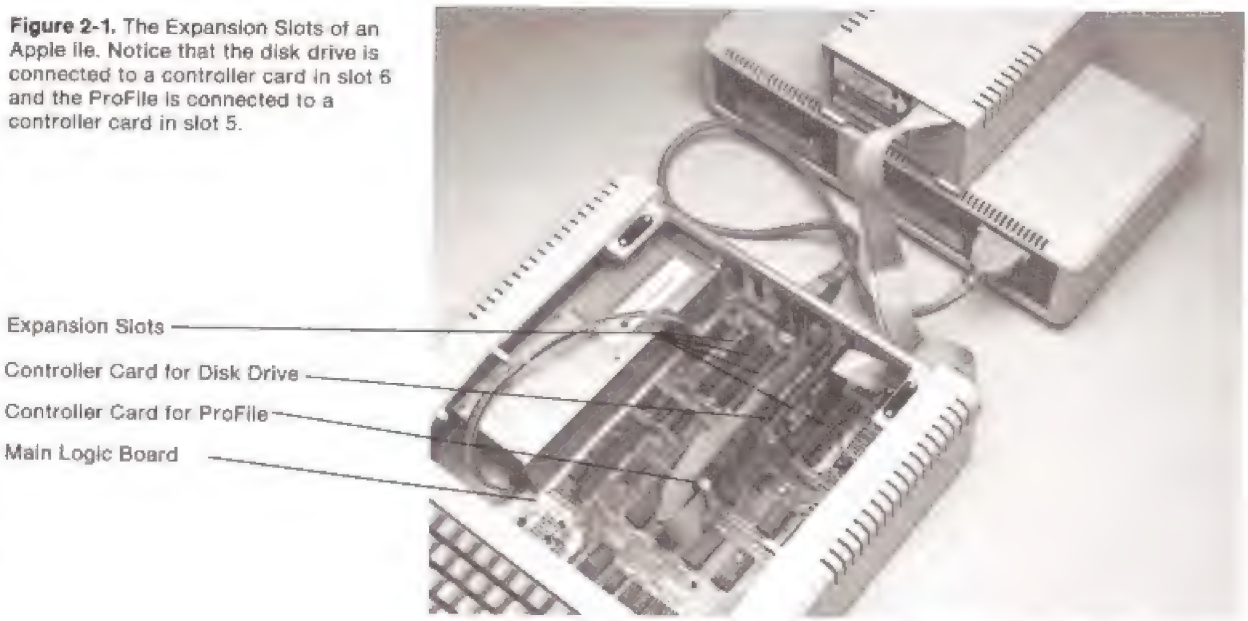


Figure 2-1. The Expansion Slots of an Apple IIe. Notice that the disk drive is connected to a controller card in slot 6 and the ProFile is connected to a controller card in slot 5.

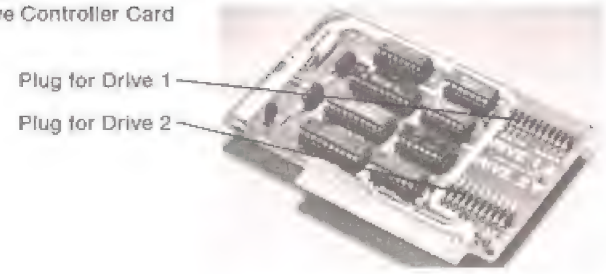
If you're asked for the volume address of a ProFile, all you have to provide is the slot number. For drives for flexible disks, you also need to provide a drive number. The reason you have to specify a drive number is that there can be two disk drives attached to one card in one slot.

Drive Numbers

There is usually a label on the outside of a drive for flexible disks, telling you whether it's drive 1 or drive 2. But those labels are for your convenience; they don't mean a thing to the computer. The computer distinguishes drive 1 from drive 2 based on how the disk drive cables are connected to the controller card.

If you have one disk drive, it's attached to the upper set of pins on the controller card. Those pins are labeled *DRIVE 1*. If you have a second disk drive, it is attached to the lower set of pins on that same controller card. The lower pins are labeled *DRIVE 2*.

Figure 2-2. Disk Drive Controller Card



If you have more than two disk drives, the additional drives are attached to a second controller card. Like the first two disk drives, they are designated drive 1 and drive 2. The only way to tell them apart from the original drive 1 and drive 2 is by their slot number. While the original drive 1 and drive 2 are hooked up to slot 6, the other drive 1 and drive 2 might be hooked up to slot 5.

Once you get used to describing a volume's address as drive 1 in slot 6, to distinguish it from drive 1 in slot 5, it's no more confusing than referring to the addresses of two houses with the same number that are located on different streets or referring to two streets with the same name that are located in different cities.

So much for theory. How do you find out which drive is which and how your controller card is plugged into the computer?

The easiest way is to choose the Display Slot Assignments option from the *User's Disk* Main Menu: it will tell you exactly what is connected to what. Another way is to turn off the power, open up the computer and look for yourself.

Summary of Chapter 2

Volume: Another term for *disk*. The volume used most commonly with the Apple II is the flexible disk. The term *volume* also applies to rigid disks like the ProFile.

Volume commands: Commands that affect whole disks.

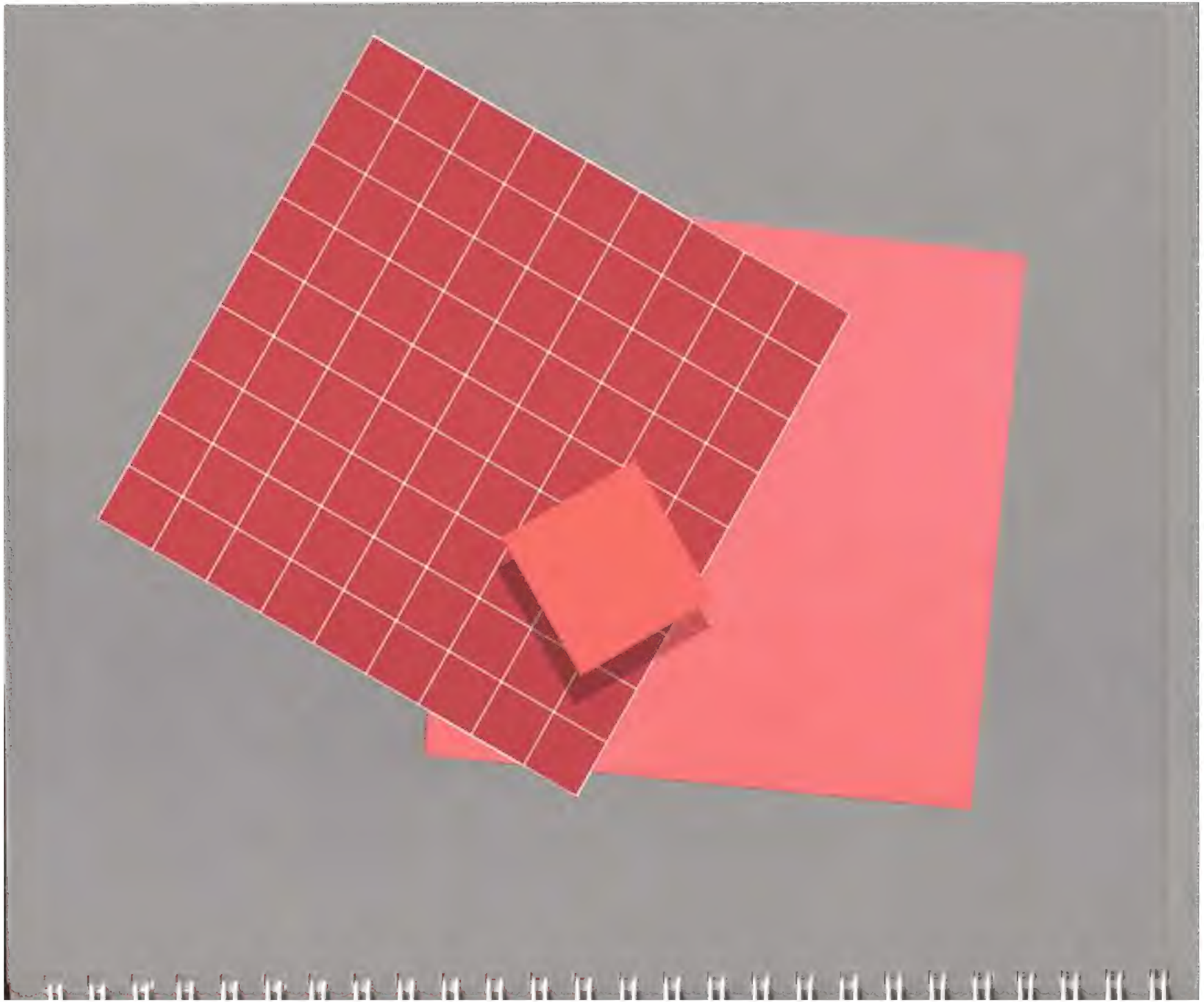
Volume name: The name of a volume. There are rules for naming a volume: must begin with a slash, then a letter; must be made up of letters, numbers, or periods; must not have any spaces or punctuation characters other than periods; must not exceed 15 characters (not counting the slash).

Slot: Short for *expansion slot*. One of the narrow connectors inside the Apple II where you plug in controller cards for disk drives, printers, and other peripheral devices.

Drive: Short for *disk drive*. An external storage device that retrieves information from and stores information on disks.

Chapter 3

Using the Volume Commands



Chapter 3

Using the Volume Commands

See Chapter 2 for an explanation of the terminology associated with the volume commands.

Volume commands affect the entire disk. This chapter explains how to use each of the volume commands in the ProDOS Filer.

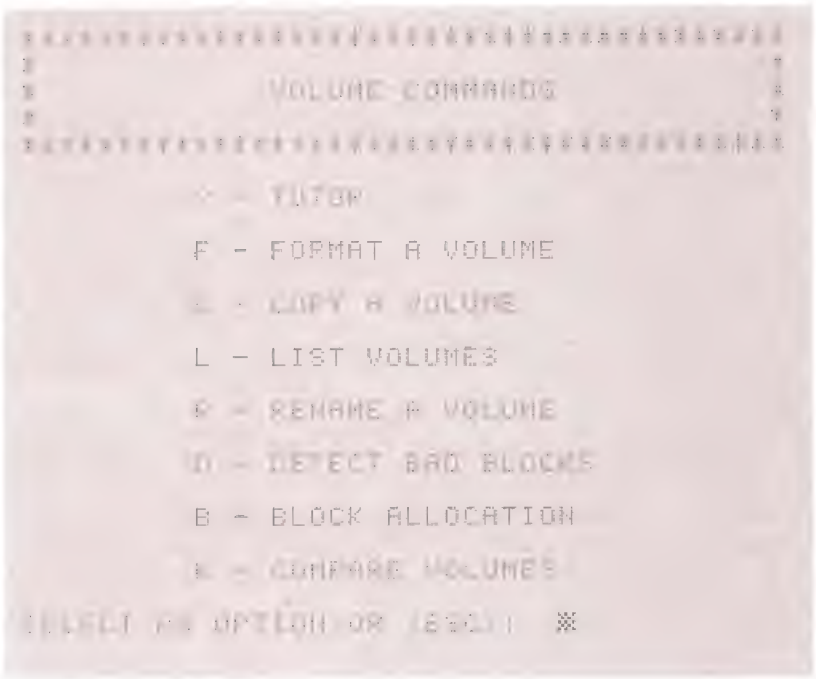


Figure 3-1. The Volume Commands Menu of the ProDOS Filer

Here's a list of the commands (or options) on the Volume Commands Menu, shown in Figure 3-1, and a short description of what they're used for:

Command	What It Does
Tutor	Explains the terms used in volume command displays, and tells how to type entries on the display.
Format a Volume	Prepares volumes for use by dividing the recording surface into sections, called **blocks**, for information storage and retrieval. You can name volumes as you format them or accept default names in the form /BLANKXX (where XX is a number between 00 and 99).
Copy a Volume	Lets you create an exact duplicate of another volume. You can give the copy a new name or give it the same name as the original by accepting the default.
List Volumes	Lets you find out which of your disk drives and/or slots contain ProDOS-formatted disks, and what slot, drive, and volume name corresponds to each disk.
Rename a Volume	Lets you rename a volume without changing its contents.
Detect Bad Blocks	Makes it possible to scan a volume for damaged blocks, which could cause you to lose access to your data.
Block Allocation	Lets you see the total number of blocks on a volume, how many blocks are used, and how many are available.
Compare Volumes	Lets you compare two volumes to see if they are exact copies of each other.

A **block** is a unit of information 512 bytes long. A **byte** is a basic unit of your computer's memory, equivalent to eight bits. A **bit** is the smallest amount of information that a computer can hold.

In the following pages, each of these commands will be examined in detail.

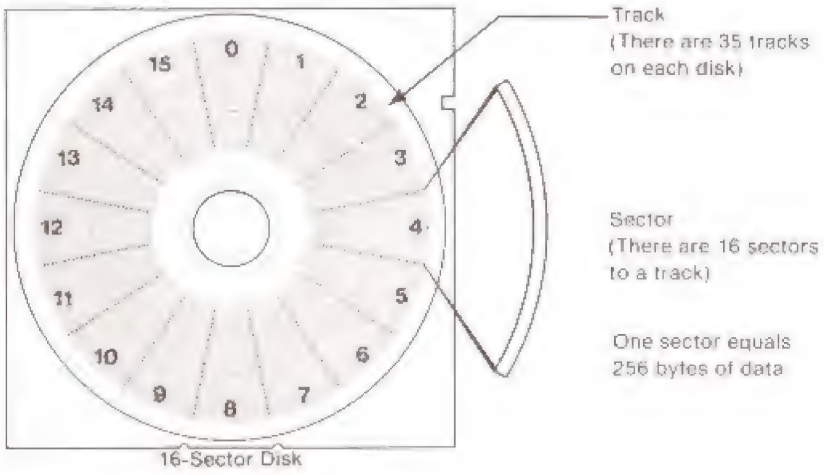
Format a Volume

When you want to put words on a blank piece of paper, you can do so with a typewriter, a pen, or a pencil. There's nothing special you have to do to the paper to prepare it to receive your prose.

When you **format** a disk you prepare it to receive information by dividing the surface into tracks and sectors. Formatting is also called **initializing.**

The same is not true of blank disks. Disks must be **formatted** before they can store your words away. When a volume of magnetic mass storage, like a disk, is manufactured, it contains no information at all. Formatting the volume prepares it for use by dividing its recording surface into standard size **blocks** where information can later be stored.

Figure 3-2. A Formatted Disk



Although you must format blank disks before you can use them to store information, disks don't have to be blank to be formatted. It is important, however, that the information on the used disk be expendable; when you reformat a disk, everything that was stored on the disk becomes inaccessible.

The **destination** disk is the disk that will receive the new information.

The only time you don't have to format a blank disk before you use it to store information is when you use the Copy a Volume command. This command formats **destination** disks before copying information onto them.

You might wonder why disks aren't formatted for you at the time they are manufactured. The reason is that different computers require different kinds of formatting.

Here's How

1. Get to the Filer Menu. (If your computer is turned off, put the *ProDOS User's Disk* in drive 1, turn on the power, and press [F] when you see the Main Menu. If you're still staring at the list of slot assignments, press [RETURN] to return to the Main Menu and press [F] for PRODOS FILER.)
2. Press [V] (for VOLUME COMMANDS) from the Filer Menu.

Note: If you don't see the Volume Commands Menu, you probably typed one of the other letters from the Filer Menu. You can get back to the Filer Menu and try again by pressing [ESC].

If nothing at all happened and you're still staring at the Filer Menu, you probably typed a letter that wasn't on your list of options. In which case, you've discovered that the Filer is very forgiving. If you make a typing mistake and it isn't one of your options, you'll get a beep, but you won't see smoke, hear sirens, or get whisked away to never-never land. You'll get another chance, and another, and another. Like a discreet butler, the Filer overlooks innocent blunders.

3. Press [F] (for FORMAT A VOLUME) from the Volume Commands Menu. You'll see the display shown in Figure 3-3.

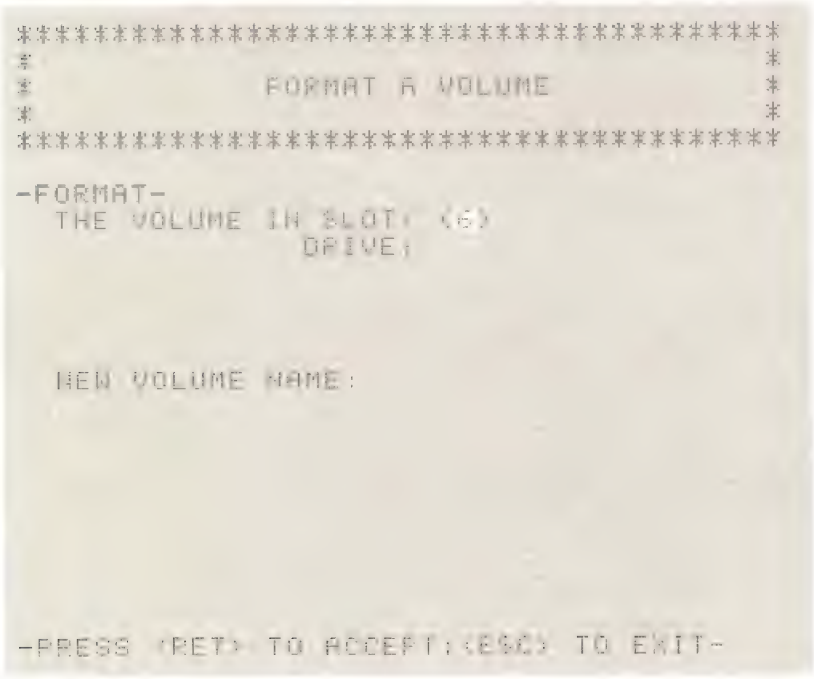


Figure 3-3. Format a Volume Display

The **cursor** marks where the next character you type will appear on the display.

A **default** is the program's best guess as to what you will do next.

Note: The display in front of you isn't a menu, it's a series of statements. The flashing square over the number *6* on the upper right of your display is a **cursor.** The numbers in parentheses are defaults (the programmer's calculated guess as to how you'll complete the statement.) They're called **defaults** because they'll be used by default unless you supply an alternative. You can accept the default by pressing (RETURN). You can change the default by typing over it.

4. Put the volume you want to format (the blank disk, or a disk that contains information you no longer want) in any available disk drive. (If you have a one-drive system, take out the *User's Disk* and replace it with the volume you want to format.)
5. Fill in the slot number of the volume you want to format. (Remember: To accept the default value between parentheses, press (RETURN). To alter the given value, type over it. In either case, the cursor will jump down to the next line.)
6. If you're asked to supply a drive number, type it in or accept the default by pressing (RETURN). (You won't be asked for a drive number if you're formatting a ProFile disk.)
7. Now you can either type a name for the volume you're formatting, or you can accept the default. The default name is /BLANKXX (where XX is a number between 00 and 99).

Note: If you're formatting several disks at one time, and use the default name (BLANKXX), you'll notice that the disks are numbered in sequence: BLANK23, BLANK24, BLANK25, and so on. This feature lets you format a whole box of blank disks in a few minutes without having to worry about giving them each a unique name. You can change the volume names of any of these disks, at any time, with the Rename a Volume command discussed later in this chapter.

If you want to accept the default, press (RETURN). If you have some other name in mind, type over the default. The slash is provided for you, but remember the name you choose must begin with a letter, and can have no more than 15 characters made up of letters, numbers, or periods. To restore the default, press (ESC). Press (RETURN) when you've finished typing the name.

If you are formatting a previously formatted disk, you'll get a message like this:

DESTROY /XXX? (Y/N)

(where XXX is the name of the disk you're about to reformat)

If you knew you were about to format XXX, and are willing to lose all the information stored on that disk, press (Y) (for *yes*) and the formatting will begin.

If you don't want to format XXX, press (N) (for *no*) and there's no damage done. Press (ESC) to return to the Volume Commands Menu.

If the volume you are formatting has never been formatted before, and all is well, you'll see this message:

```
FORMAT COMPLETE
```

Remove the formatted disk and label it with its new volume name. If the label is already on the disk, be sure you use a felt-tip pen. A pencil or ball-point pen can damage the surface of the disk.

ProFile Note: If you try to format a mass storage disk like the one in your ProFile, you'll get this message:

```
WARNING! YOU ARE ABOUT TO FORMAT A LARGE DISK
```

If it was a mistake, press (ESC).

If you knew you were about to format a large disk, press (RETURN). However, it's unlikely that you'd want to format your ProFile disk more than once, so think twice before you press (RETURN). Remember, formatting makes all the information on the disk inaccessible.

If something goes wrong during the format procedure, you'll see an error message. If you're not sure what the message means or what to do about it, consult Appendix A.

Copy a Volume

By the time you finish reading this manual, your *User's Disk* will be as familiar to you as an old shoe. Unfortunately, it's more fragile than an old shoe, and if your dog decides to fetch it for you one morning, goodbye *User's Disk*. For this reason, and a hundred more, it's a good idea to make backup copies of all your important disks.

If you believe in auto insurance for your car and fire insurance for your home, you should also believe in making copies of important disks. There is no other insurance against disk disaster.

Maybe you don't use your disks for coffee coasters. Maybe your children won't mistake a disk for a frisbee. Maybe you won't bring work home from the office on a disk and leave it basking on the dashboard all weekend. Maybe you'll be lucky.

The trouble is, it's so easy to make copies of your disks that no one will sympathize with you if disaster strikes. Don't take chances. Take out some volume insurance. You can practice using this important command right now by making a copy of your ProDOS disk.

ProFile Note: You won't use this command to make copies of your ProFile disk (unless you have two ProFiles). You can use the Copy a Volume command only to make copies of like volumes. Use the Copy Files command to duplicate data stored on your ProFile to flexible disks.

Here's How

1. Get to the Filer Menu.
2. Press [V] (for VOLUME COMMANDS) from the Filer Menu.
3. Press [C] (for COPY A VOLUME) from the Volume Commands Menu. You'll see the display shown in Figure 3-4.

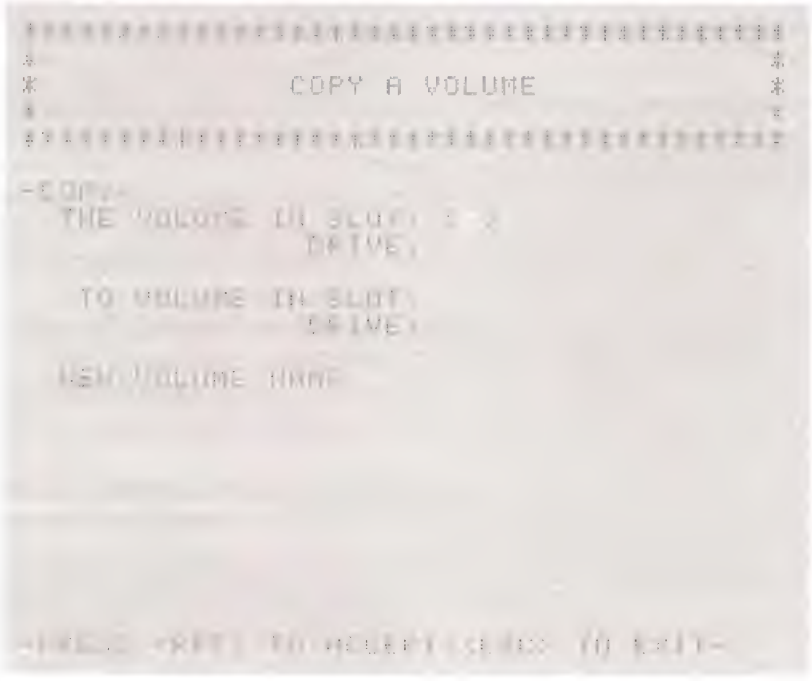


Figure 3-4. Copy a Volume Display

The **source volume** is the original.

4. Type the slot number of the **source volume** or accept the default by pressing (RETURN). In either case, the cursor will jump down to the next line on the display.
5. Type the source drive number (if asked) or accept the default by pressing (RETURN). Again, the cursor will jump down to the next line on the display.

The **destination volume** is the copy.

6. Type the slot number of the **destination volume** or accept the default by pressing (RETURN). The cursor will jump to the next line on the display.
7. Type the destination drive number (if asked) or accept the default by pressing (RETURN). You'll see this message:

   INSERT DISKS AND PRESS (RET)

8. Put the source (original) and destination (new) disks in the appropriate drives and press (RETURN).

   If you have a one-drive system, put your source volume in your disk drive and be ready to do quite a bit of disk swapping. Messages at the bottom of the display will tell you when to insert the source volume and when to insert the destination volume.

A **write-enable notch** is a square cutout on the edge of the disk's jacket that allows information to be written on the disk.

A **write-protect tab** is a small adhesive sticker, usually silver, used to cover the write-enable notch so that the information on the disk cannot be altered.

By the Way: Some disks don't have **write-enable notches** on the side. That means that you can't change the contents of the disk even if you want to. Other disks have notches that allow you to modify disk contents. When you're making copies of important disks it's a good idea to cover the notch on your source disk with a silver **write-protect tab,** just in case you get your source and destination disks confused during the copy process.

9. Type the name you want to give the destination volume. The default is the name of the source volume. You can accept the default by pressing (RETURN), or you can type a new name over the default. Remember, your volume name must begin with a letter (the opening slash is provided for you; if you try to type it, you'll get a beep) and can be no longer than 15 characters—made up of letters, numbers, or periods. Press (RETURN) when you finish entering your new volume name.

See "The Filer Displays" at the opening of Part II for information on editing the default.

You'll hear some whirring and see FORMATTING, READING, WRITING as the disk is copied.

Note: When you see READING and WRITING on the display, the Filer reads information from the source disk into the memory of the Apple II computer and then writes it out to the destination disk, creating an exact copy.

If the destination volume wasn't blank, you'll see this message:

```
DESTROY 'XXX'? (Y/N)
```

(Where XXX is the actual name of the volume you are about to copy over.)

If you knew you were formatting and copying over that particular volume, you can press [Y] (for *yes*) and the copying will proceed. If you put the volume in by mistake, thinking it was a blank disk, you can press [N] (for *no*) and no harm will come to the disk. You'll return to the top of the Copy a Volume display. You can return to the Volume Commands Menu by pressing [ESC].

By the Way: You can use the Copy a Volume command to copy non-ProDOS disks. (The default for NEW VOLUME NAME will be NON-PRODOS DISK.) If you are copying a non-ProDOS disk to another non-ProDOS disk, no warning will be given before the disk is copied. You also will not get a warning if you copy a ProDOS disk or a non-ProDOS disk to a DOS 3.2 disk or a blank disk. If you copy a ProDOS disk to a non-ProDOS disk, you will see

```
DESTROY 'NON-PRODOS' DISK? (Y/N)
```

If you want to make the copy, press [Y] and the command will proceed. If you put the non-ProDOS disk in by mistake, you can stop the copy by pressing [N].

When it's all over, you'll see this message:

```
COPY COMPLETE
```

Once the copy is complete, the cursor will jump back to the first line on the Copy a Volume display in case you want to make additional copies. If you don't want to make any more copies, press [ESC]; you'll return to the Volume Commands Menu.

If there's a problem during the copy operation, you'll see an error message. If you're not sure what it means or what to do about it, consult Appendix A.

Warning

If there is a problem during the copy operation, the volume name of the destination disk will be /PARTIALCOPYDISK. This means it's a bad copy, and you should try to make another copy. If you suspect a problem, use the Detect Bad Blocks or Compare Volumes commands described later in this chapter to find out if your copy was successful.

List Volumes

You can use the List Volumes command to find out which ProDOS volumes are in which drives connected to which slots inside the computer case.

Here's How

1. Get to the Filer Menu.
2. Press (V) (for VOLUME COMMANDS) from the Filer Menu.
3. Press (L) (for LIST VOLUMES) from the Volume Commands Menu. You'll see a display similar to Figure 3-5.

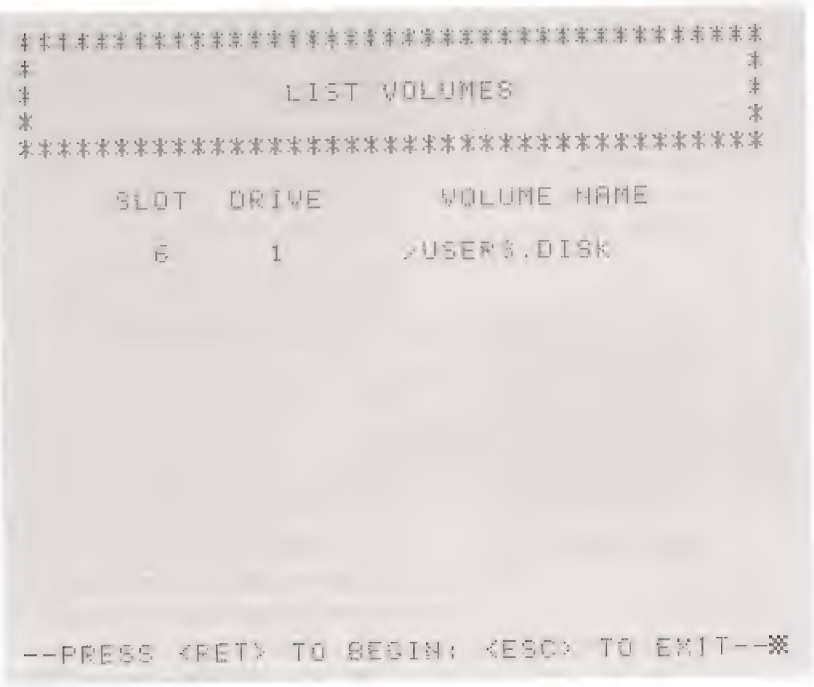


Figure 3-5. List Volumes Display

The **startup slot** is the one that connects the disk drive that holds the startup disk.

The List Volumes display tells you which ProDOS volume is in which disk drive connected to which slot number. The list will begin with the **startup slot.** If one of your disk drives is empty or contains an unformatted disk, it won't show up on the list. If one of the disks in your disk drives is not a ProDOS disk or isn't recognizable to ProDOS, the message

```
<NO DIRECTORY>
```

will appear in place of the volume name.

The **Monitor program** is a system program that is built into the hardware of the computer.

Note: When you turn on your computer, the **Monitor program** looks for information on the disk in drive 1 connected to the highest numbered slot (usually slot 6). If information is found, such as ProDOS, that gets the computer running, that slot then becomes known as the **startup slot.**

Rename a Volume

When a blank disk is first formatted, it is often given a name like /BLANK14. Maybe you name your newly formatted disks more whimsically—after racehorses, say, or country western singers. Nevertheless, there comes a time when it would be more informative if the disk containing your income tax computations were called /TAXES82 instead of /SEABISCUIT or /DOLLYPARTON. This is especially true if you work in an office where others need access to your files.

The Rename a Volume command lets you change the name of a volume without changing any of its contents.

Here's How

1. Get to the Filer Menu.
2. Press (V) (for VOLUME COMMANDS) from the Filer Menu.
3. Press (R) (for RENAME A VOLUME) from the Volume Commands Menu. You'll see a display like the one shown in Figure 3-6.

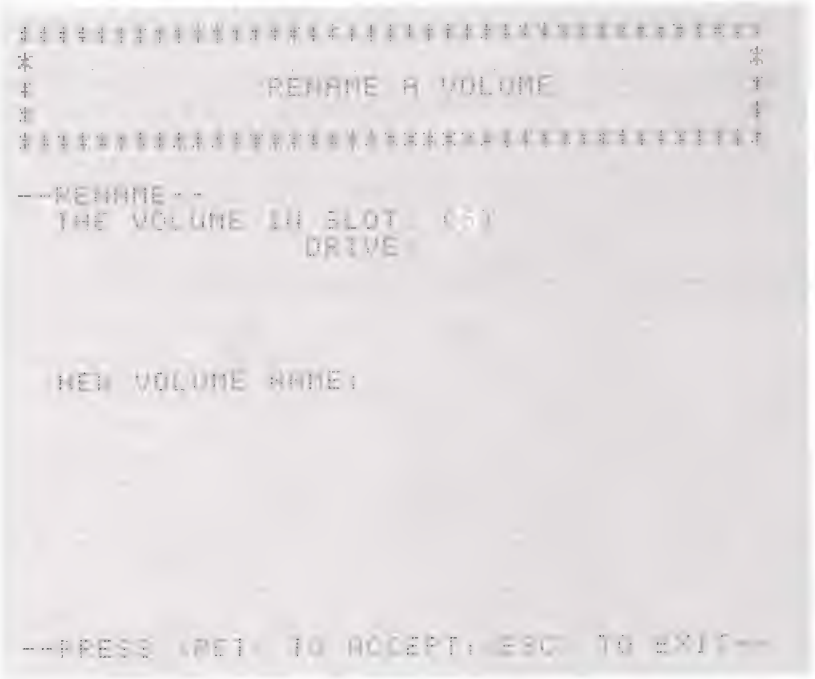


Figure 3-6. Rename a Volume Display

ProFile Note: If you're renaming a ProFile disk, skip to step 5.

4. Put the volume you want to rename in any available disk drive. (If you have a one-drive system, take out the *User's Disk* and replace it with the volume you want to rename.)
5. Fill in the slot number of the volume you want to rename.
6. If prompted, fill in the drive number of the volume you want to rename. (You won't be asked for a drive number if you're renaming a ProFile volume.)
7. Now you can either type in a new name for the volume, or you can edit the default name, which is the old name of the volume. To edit the name, press → to accept letters and then type over the letters you want to change. Press RETURN to indicate that you've finished typing or editing the new volume name. (If you edit the default name, make sure that the cursor is at the end of the name before you press RETURN; otherwise the character under the cursor and all characters to the right of the cursor will be left off the new volume name.)

If all goes well, you'll see this message:

```
RENAME COMPLETE
```

If there's a problem, you'll see an error message. If you're not sure what the message means, or what to do about it, consult Appendix A.

Detect Bad Blocks

Sometimes it's obvious when a disk is on its last legs—you crease it trying to force it into your disk drive or you set it down in the overflow from a plant you've just watered. But sometimes volumes go bad in more subtle ways. They develop bad blocks. Bad blocks can be caused by such things as fingerprints or dust on the disk. If you suspect that a volume has been damaged (unusual clicking noises coming from the disk drive is a good clue), or if you're having trouble accessing information on a disk, use the Detect Bad Blocks command.

Here's How

1. Get to the Filer Menu.
2. Press (V) (for VOLUME COMMANDS) from the Filer Menu.
3. Press (D) (for DETECT BAD BLOCKS) from the Volume Commands Menu. You'll see the display shown in Figure 3-7.

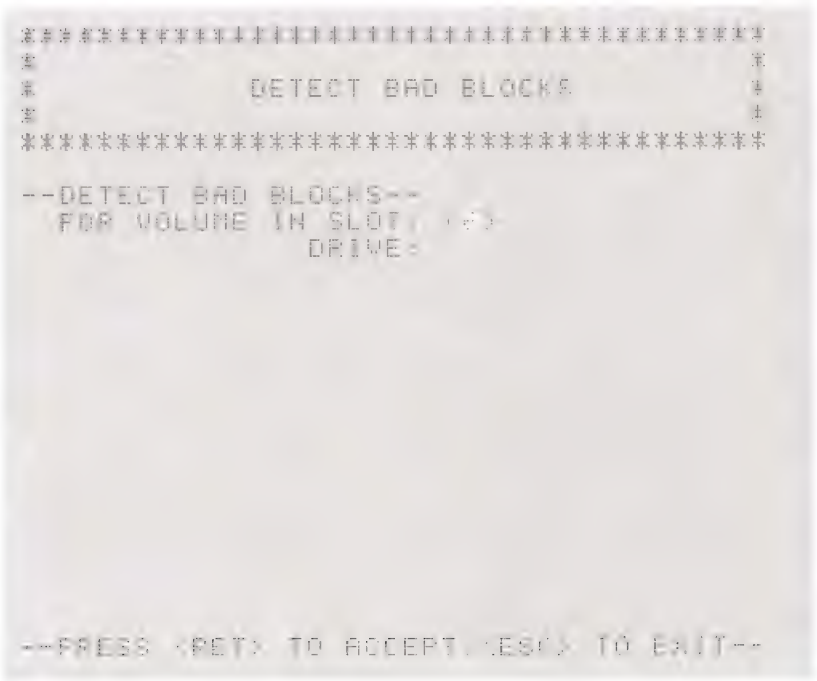


Figure 3-7. Detect Bad Blocks Display

ProFile Note: If you're checking for bad blocks on a ProFile disk, skip to step 5.

4. Put the volume you want to check in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the volume you want to check.
5. Fill in the slot number of the volume you want to check.
6. If prompted, fill in the drive number of the volume you want to check. (You won't be asked for a drive number if you're checking for bad blocks on a ProFile.)

If all goes well, you'll see this message:

```
0 BAD BLOCKS
```

If bad blocks are detected, you'll get a message like this:

```
BAD BLOCK NUMBER:
     XXXX
     XXXX
     XXXX
```

(where XXXX stands for the numbers of the bad blocks). If you want to check other volumes for bad blocks, press RETURN. If not, press ESC.

By the Way: You can also use this command to detect bad blocks on DOS 3.3 disks.

If the volume you're checking has bad blocks, copy all the files to another disk (using the Copy Files command explained in Chapter 5). When you come to the files with bad blocks, you'll get the message `I/O ERROR`. Once you've salvaged all the files you can, format the disk that has the bad blocks.

Note: You can get a printed list of the bad blocks by changing the output device from the video monitor to your printer. This procedure is explained in Chapter 6, "Configuration Defaults."

If you get an error message and you're not sure what the message means or what to do about it, consult Appendix A.

Block Allocation

This command lets you find out how many blocks on a given volume are taken up with files, how many are available, and the total number of blocks on the volume.

If you're copying files to a disk, it's nice to know in advance whether there's room on that disk to hold them. This command gives you that information.

Here's How

1. Get to the Filer Menu.
2. Press [V] (for VOLUME COMMANDS) from the Filer Menu.
3. Press [B] (for BLOCK ALLOCATION) from the Volume Commands Menu. You'll see the display shown in Figure 3-8.

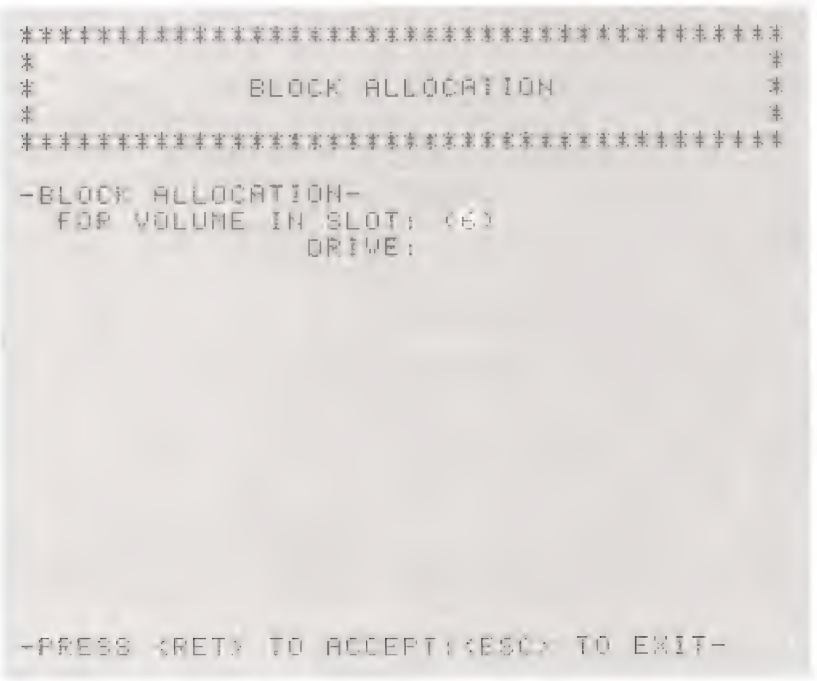


Figure 3-8. Block Allocation Display

ProFile Note: If you're displaying the block allocation of a ProFile disk, skip to step 5.

4. Put the volume you want to check in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the volume you want to check.
5. Type the slot number of the relevant volume.
6. If prompted, type the drive number of the volume you are checking. (You won't be asked for a drive number if you're checking the block allocation of a ProFile.)

If all goes well, you should see a display similar to Figure 3-9 indicating the number of blocks used, the number of blocks free, and the total number of blocks on the volume:

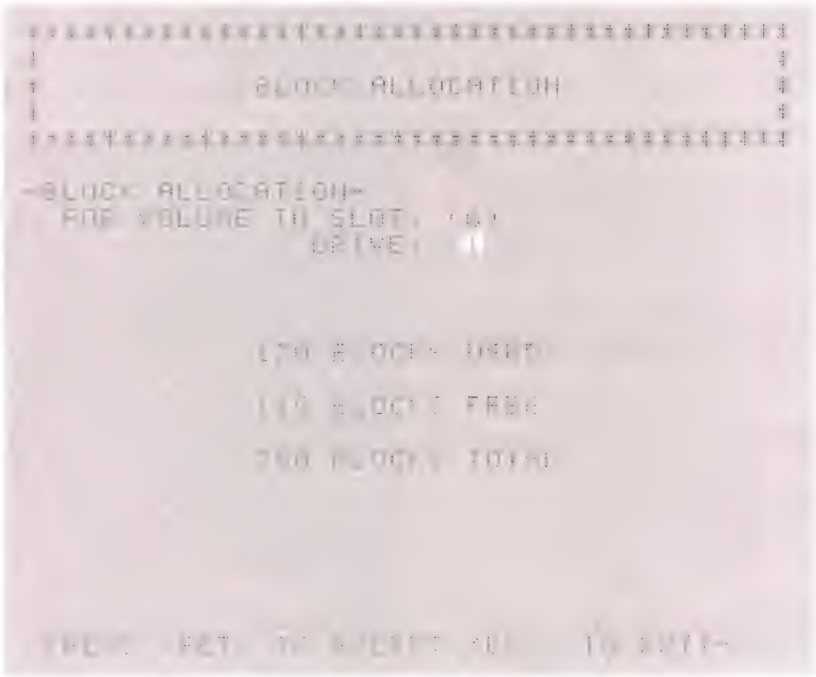


Figure 3-9. Completed Block Allocation Display

If you don't see this display, you probably got a beep and an error message. If you're not sure what the message means, or what to do about it, consult Appendix A.

Compare Volumes

As the name suggests, you can use this command to compare two volumes for blocks that don't match. It's a handy command to use if you get disks mixed up and want to make sure a copy is really identical to the original.

Once you've completed the statements on the Compare Volumes display, the Filer does a byte-by-byte comparison of the two volumes. If the disks aren't exact images of each other, the numbers of any mismatching blocks are shown on the display.

ProFile Note: This command won't do you much good unless you have two Profiles with identical contents, and that's very unlikely.

Here's How

1. Get to the Filer Menu.
2. Press (V) (for VOLUME COMMANDS) from the Filer Menu.
3. Press (K) (for COMPARE VOLUMES) from the Volume Commands Menu. You'll see a display similar to Figure 3-10.

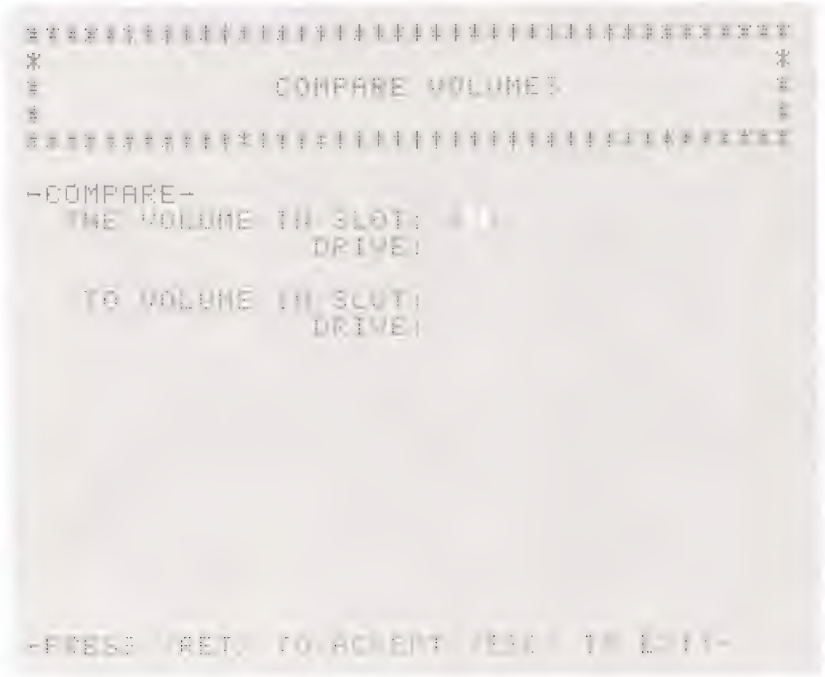


Figure 3-10. Compare Volumes Display

4. Type in the slot number of the first volume.
5. If prompted, fill in the drive number of the first volume.
6. Type in the slot number of the second volume.
7. If prompted, fill in the drive number of the second volume.

   You'll see this message:

   [illegible]

8. Put the volumes in the drives you specified and press (RETURN). (If you have a one-drive system, put one volume in your disk drive. There will be prompts on the display telling you when to take out your first volume and put in your second.)

By the Way: You can also use this command to compare two DOS 3.3 disks.

If all goes well, you'll get the following message:

```
COMPARE COMPLETE
```

If any of the blocks failed to match, you'll get a message like this:

```
BLOCK NUMBERS DO NOT MATCH:
            0
            2
            6

-PRESS <RET> TO CONTINUE; <ESC> TO EXIT-
```

Only three of the mismatching blocks are shown initially. If you press (RETURN), the numbers of the remaining mismatching blocks will be displayed.

If the only mismatching block is number 2, the volumes are exactly the same except for their names or some other information in the volume directory. If block number 6 is displayed, it means that the maps for the disks are not the same. In other words, the copy procedure did not work.

By the Way: You can get a printed list of mismatching blocks by changing the output device from the video monitor to your printer. This procedure is explained in Chapter 6, "Configuration Defaults."

If you got an error message and you're not sure what the message means or what to do about it, consult Appendix A.

Summary of Chapter 3

Format a Volume

The Format a Volume Command prepares disks to receive information.

You supply

- the slot number of the disk to be formatted.
- the drive number of the disk to be formatted (if required).
- the volume name of the disk to be formatted.

If there is already a directory on the disk to be formatted, you'll be asked to confirm your intention to reformat the disk.

If you're about to format the disk of a mass storage device, such as a ProFile, you'll be asked to confirm the operation.

Copy a Volume

The Copy a Volume command copies the contents of one volume to another volume of the same type and size.

You supply

- the slot number of the source (original) volume.
- the drive number of the source volume (if required).
- the slot number of the destination (copy) volume.
- the drive number of the destination volume (if required).
- the volume name of the destination volume.

This command copies disks block by block. Because of this, you can copy DOS 3.3 or ProDOS disks. The command starts by formatting the destination disk with 16 sectors. The copy can be either DOS or ProDOS depending upon the nature of the original disk.

The Filer checks for a ProDOS directory. If the source is a ProDOS disk and the destination is non-ProDOS, you'll get the message

```
DESTROY 'NON-PRODOS' DISK <Y/N>?
```

If you want to make the copy, press (Y) and the command will proceed. If you put the non-ProDOS disk in by mistake, you can stop the copy by pressing (N).

When you are copying a non-ProDOS disk, the default for `NEW VOLUME NAME` will be `NON-PRODOS DISK`. When you copy a non-ProDOS disk to another non-ProDOS disk, no warning will be given before the disk is copied. You also will not get a warning if you copy a ProDOS disk or a non-ProDOS disk to a DOS 3.2 disk or a blank disk.

If you're copying with one drive, you'll get prompts telling you when to alternate the source and destination disks.

I/O stands for *input/output*, which refers to the transfer of information into and out of a computer.

In the event of an **I/O** error, the destination disk receives a temporary volume name to alert you that the copy procedure was not successful.

List Volumes

The List Volumes command lists the slot number, drive number (if applicable), and the names of all ProDOS volumes in disk drives connected to your Apple II.

The volumes are listed in the order in which they are encountered, with the startup slot and drive first. If one of the volumes isn't a ProDOS disk, the message NO DIRECTORY will be displayed.

Rename a Volume

The Rename a Volume command renames the volume you specify.

You supply

- the slot number of the volume to be renamed.
- the drive number of the volume to be renamed (if required).
- the new volume name.

Once you supply this information, the volume name is changed.

Detect Bad Blocks

The Detect Bad Blocks command performs a validity check by searching for damaged blocks.

You supply

- the slot number of the volume you want to check.
- the drive number of the volume you want to check (if required).

Once you supply this information, the volume is searched. If a bad block is detected, a message is displayed indicating the number(s) of the bad block(s). If there are no bad blocks you'll get the message:

0 BAD BLOCK(S).

You can also use this command to detect bad blocks on DOS 3.3 volumes.

Block Allocation

The Block Allocation command tells you how many blocks are used, how many blocks are available, and the total number of blocks on a specified volume.

You supply

- the slot number of the volume you want to check.
- the drive number of the volume you want to check.

Once you supply this information, the disk is checked to see how many blocks are used, how many are free, and the total number of blocks on the volume.

Compare Volumes

The Compare Volumes command does a byte-by-byte comparison of any two volumes of the same type and size.

You supply

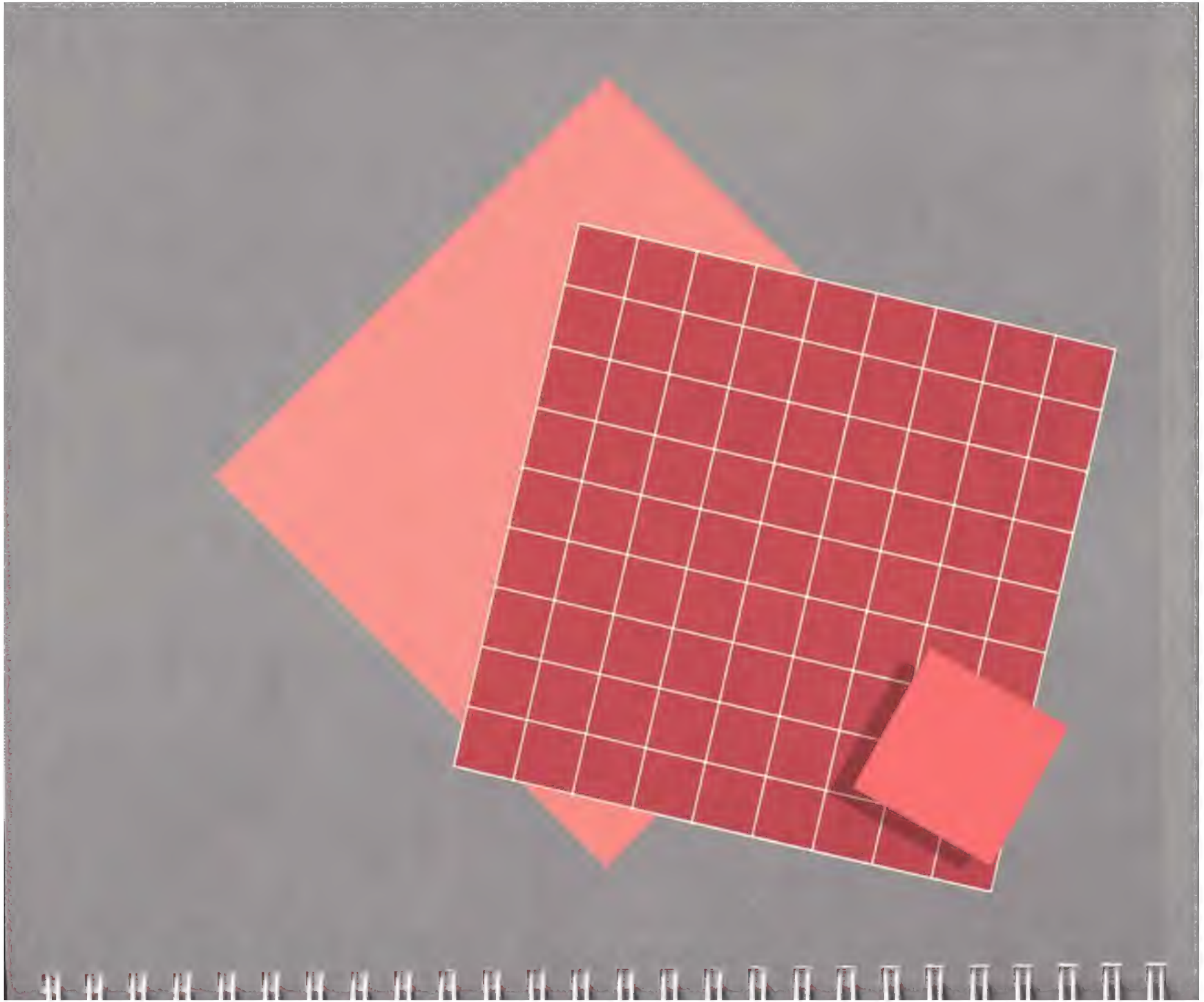
- the slot number of the primary volume you want compared.
- the drive number of the primary volume you want compared (if required).
- the slot number of the secondary volume you want compared.
- the drive number of the secondary volume you want compared (if required).

The disks in the two volumes are accessed for a byte-by-byte comparison. If the volumes aren't exact images of each other, the mismatching block numbers will be displayed.

You can also use this command to compare two DOS 3.3 volumes.

Chapter 4

About Filenames, Directories, and Pathnames



Chapter 4

About Filenames, Directories, and Pathnames

Chapter 5 explains how to use each of the file commands.

One of the five options on the Filer Menu is File Commands. This group of commands works with individual files on a disk. This chapter provides background information on files, directories, pathnames, and prefixes—the stuff of which file commands are made.

A file is an orderly collection of information on a disk. It can be a program, a poem, or a recipe for potato salad.

All files have names and when you want access to a file, you refer to it by its name.

Filenames

The computer doesn't name files—you do. But there are a few ground rules. Filenames can have no more than 15 characters. The first character must be a letter, but after that it doesn't matter if the characters are letters, numbers, or periods. (Filenames can't have spaces or punctuation marks other than periods.)

Here are a few acceptable filenames:

POTATOSALAD
SILLYPROGRAM
BIZ.LETTER
MEMO.1.APRIL.84

Here are a few unacceptable filenames:

POTATO SALAD	Spaces can't be included in a filename.
RIDICULOUSPROGRAM	Too long. The limit is 15 characters.
EMILY'SPOEM	Apostrophes aren't legal characters.
MEMO: BILL	Colons and spaces are illegal characters.

If you forget these rules and try to leave a blank in the middle of a filename, the Filer helps you by refusing to print the invalid character. Each time you type a character, the Filer checks it. If it's invalid, you'll hear a beep and notice that the cursor won't budge until you type a character that is acceptable.

Directories

When a volume is first formatted, it gets a name and a directory. Anything you save on that volume is accessed through that directory.

A directory is also a file. But unlike a file that holds a recipe for potato salad, a directory file keeps track of where all the other files on the disk are stored. You could say that a directory file is like an address book.

If you want to see the contents of the volume, you can do so at any time by using the List ProDOS Directory command, which you'll learn about in the next chapter.

It seems very convenient. But after a period of time, one volume can accumulate a staggering array of unrelated files: a recipe for guacamole, a Christmas card mailing list, your tax return, a recipe for clam chowder, your child's Little League roster, a financial forecast for a critical work project, and so on.

There comes a time—especially with a mass storage disk—when it would be convenient to have a way of organizing your files so you don't have to sift through guacamole and chowder to find your financial forecasts.

You'll learn how to create subdirectories by using the Make Directory command described in the next chapter.

Subdirectories allow you to group your files logically. A subdirectory is just like a directory except that it is subordinate to the directory. And just as you can use the List ProDOS Directory command to list the volume directory, you can use the command to list a subdirectory.

By the Way: All subdirectories are directories, but not all directories are subdirectories. Each volume has only one volume directory; the rest are subdirectories.

Here's an example of how you might organize a disk with subdirectories:

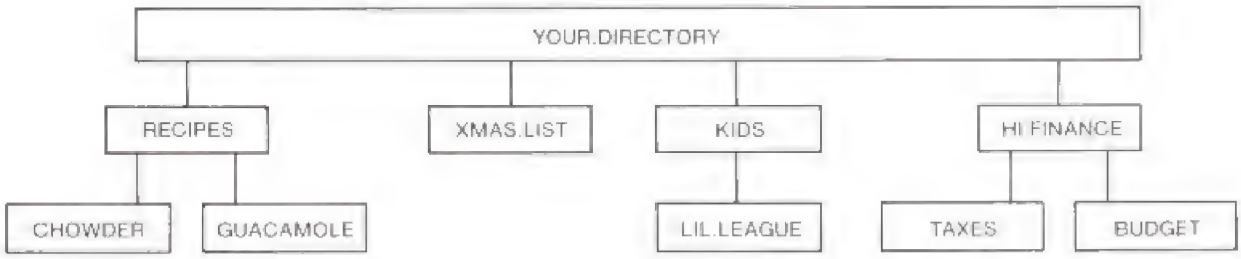


Figure 4-1. Organizing a Disk With Subdirectories

If you were to look in YOUR.DIRECTORY, you would only find the five subdirectories listed. YOUR.DIRECTORY doesn't know what is in RECIPES or KIDS. The directory is like the boss at a company who has five people reporting to him. He delegates responsibilty to those five people for the people who work for them. The volume directory keeps track of all the files on its level. When those files are also subdirectories, the subdirectories keep track of the files that are under them.

In other words, YOUR.DIRECTORY knows the addresses for RECIPES, XMAS.LIST, KIDS, and HI.FINANCE, while RECIPES knows the addresses for GUACAMOLE and CHOWDER. This kind of arrangement is called a hierarchical file structure because files are organized into successive levels.

You're not required to use a hierarchical file structure with directories within directories within directories. There's nothing to stop you from lumping everything into one big volume directory. But don't make your decision just yet. This chapter presents some examples that will show how you can use directories to build a storage system whose structure reflects the relationship between the pieces of information you're storing. If the system makes sense, use it. If it seems like more trouble than it's worth, you can go back to lumping all your files into one directory.

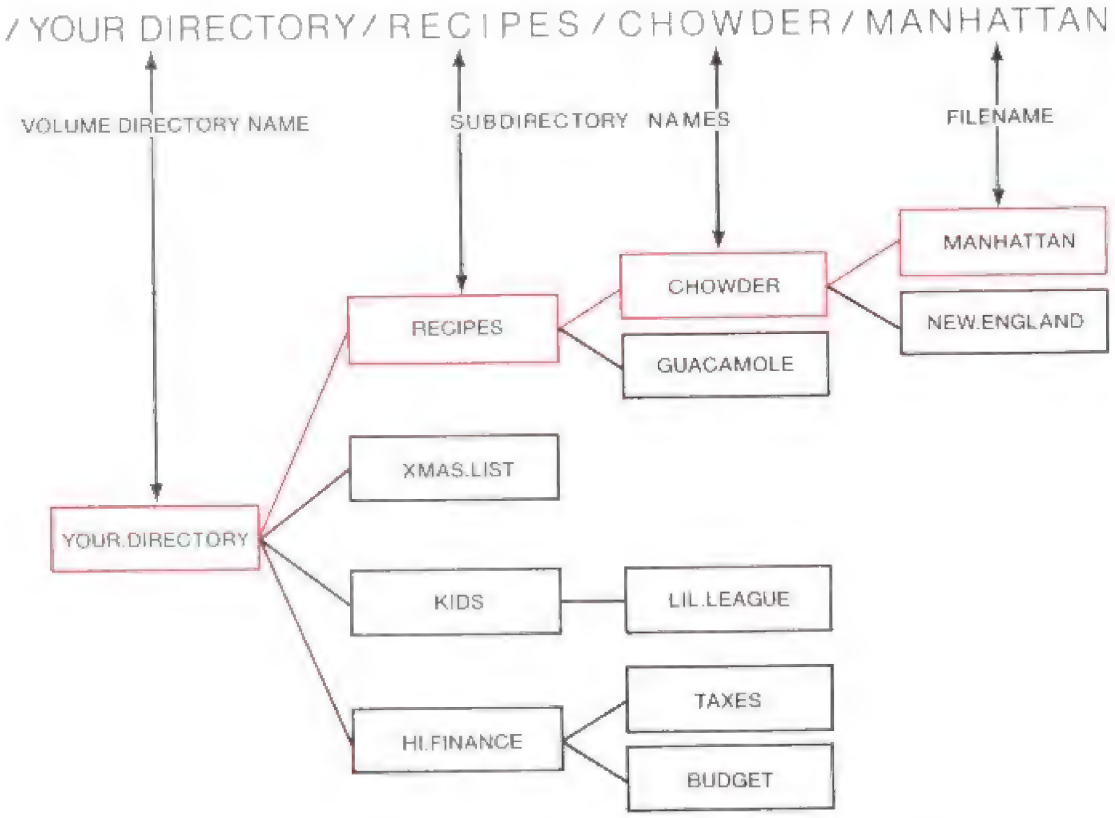
Pathnames

A pathname is the volume directory name, followed by any number of subdirectory names, followed by the filename. The entire pathname is preceded by a slash and each name within the pathname is separated by a slash. The slash is called a **delimiter.**

A **delimiter** is used to mark the beginning and end of a sequence of characters. In written English, the space is used as a delimiter between words.

In other words, the pathname tells ProDOS what *path* to take to get to a particular file. First it reads the volume directory name, then it looks in the volume directory for the location of the next directory, then it looks in that directory for the location of the file. You can have as many subdirectories as you want as long as the total number of characters in the pathname doesn't exceed 64.

Figure 4-2. Pathnames



Note: If you don't use subdirectories to organize your files, your pathnames will have only two components: the volume directory name and the filename. They're still pathnames, just very short ones.

Pathnames are a great aid to organization, but they're tedious to type. Wouldn't it be nice if there were some way to abbreviate pathnames? There is: the prefix.

Prefixes

A **prefix** is just what it sounds like. It is part of a pathname that is added to the beginning of what you type.

You'll learn how to set a prefix in Chapter 5.

It can be inconvenient to have to specify a complete pathname every time you want to locate a file. For example, if you wanted to look at all the chowder recipes you have, it would be nice not to have to type an entire 41-character pathname for each recipe. ProDOS saves the day, and the fingers, by means of a stored pathname called a **prefix.**

A prefix is a pathname of a directory or subdirectory; it is placed in front of a filename to form the file's full pathname. As you can see in Figure 4-3, the length and content of prefixes can vary.

Figure 4-3. Using Prefixes. Once the prefix is set, type the rest of the pathname (the partial pathname) to get to the file the full pathname specifies.

Prefix	+	Partial Pathname	=	Full Pathname
/YOUR.DIRECTORY/		RECIPES/CHOWDER		/YOUR.DIRECTORY/RECIPES/CHOWDER
/YOUR.DIRECTORY/RECIPES/		CHOWDER		/YOUR.DIRECTORY/RECIPES/CHOWDER

An Example: Widgets, Inc.

Widgets, Inc., a wholly owned subsidiary of Donothing Gadgets Ltd., has offices in a building on Fourth Street. When you walk into their offices, you see three large filing cabinets against the wall. The left cabinet is named ACCOUNTING, the right cabinet is named PERSONNEL, and the center cabinet is named INVENTORY.

The ACCOUNTING file cabinet has one drawer marked PAYABLE and one drawer marked RECEIVABLE. In each drawer are a lot of file folders, one folder for each company that has an account with Widgets, Inc.

The PERSONNEL file has drawers marked CURRENT EMPLOYEES, FORMER EMPLOYEES, and COMMUNICATIONS. The first two contain individual file folders for each current or former employee. The last drawer has a divider down the middle, separating INTERNAL from EXTERNAL communications. The

INTERNAL side contains file folders for each person who's ever sent a memo, and each folder contains every memo that person has sent. The EXTERNAL side contains all the documentation of Widgets' products, in no particular order.

Figure 4-4 shows the Widgets filing system.

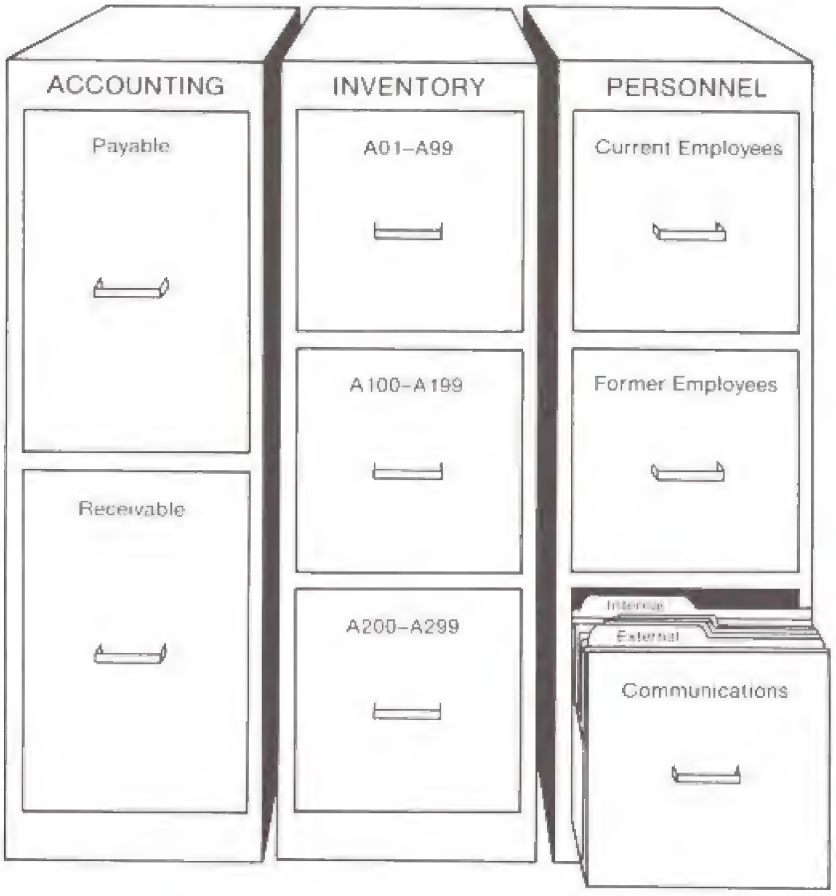


Figure 4-4. The Widgets, Inc. Filing System

You are in charge of maintaining these file cabinets. If somebody wanted to write a letter of recommendation for Sam Johnson and asked you for Sam's personnel file, you would go to the PERSONNEL filing cabinet, look in the FORMER EMPLOYEES drawer, and find the file for Sam Johnson.

If you wanted to find out how much was owed to the Quigley Supply Company, you would go to the ACCOUNTING cabinet and look in the PAYABLE drawer for the Quigley file folder.

If Steve Atkins gave you a copy of a memo he wrote, you would go back to the PERSONNEL cabinet, open the COMMUNICATIONS drawer, look in the INTERNAL side for Steve's file, and drop the memo in with all of the other internal memos Steve has sent.

If you wanted to store all of Widgets' records on the Apple II, you could set up the filing system the same way, only instead of filing cabinets, you'd use disks.

Each disk would take the name of the file cabinet it was replacing. This becomes the volume name of that disk. The disk's volume directory is also identified by this volume name. So, the ACCOUNTING disk's volume directory would contain the files named PAYABLE and RECEIVABLE, which would correspond to the drawers in the filing cabinet. These files would be directories. The PAYABLE directory would contain files named QUIGLEY, ACME, and so forth, which would contain the same information that was previously in the individual file folders.

The structure is the same throughout the rest of the filing system. The PERSONNEL disk contains three directory files: CURRENT, FORMER, and COMMUNICATIONS. The COMMUNICATIONS directory contains directory files called INTERNAL and EXTERNAL. INTERNAL contains directories for ADAMS, SMITH, JOHNSON, ATKINS, and all the rest of the memo senders. Finally, the directory ATKINS contains a file for each memo Steve Atkins has sent.

If you wanted to get that employee file for Sam Johnson, you would tell ProDOS how to locate that file by supplying a pathname. The pathname of Sam Johnson's employee file, which has the filename JOHNSON, is

/PERSONNEL/FORMER/JOHNSON

That's like saying go to the PERSONNEL cabinet, look in the FORMER employees drawer, and get the JOHNSON file. Only now you're telling ProDOS to go to the PERSONNEL volume, look in the FORMER directory, and get the JOHNSON file.

The pathname of the Quigley accounts payable file is

/ACCOUNTING/PAYABLE/QUIGLEY

That's like saying go to the ACCOUNTING cabinet, look in the PAYABLE drawer, and get the QUIGLEY file. Or to put it in language that ProDOS can understand: go to the ACCOUNTING volume, look in the PAYABLE directory, and get the QUIGLEY file.

The pathname of the individual memo that Steve Atkins sent on March 15 might be

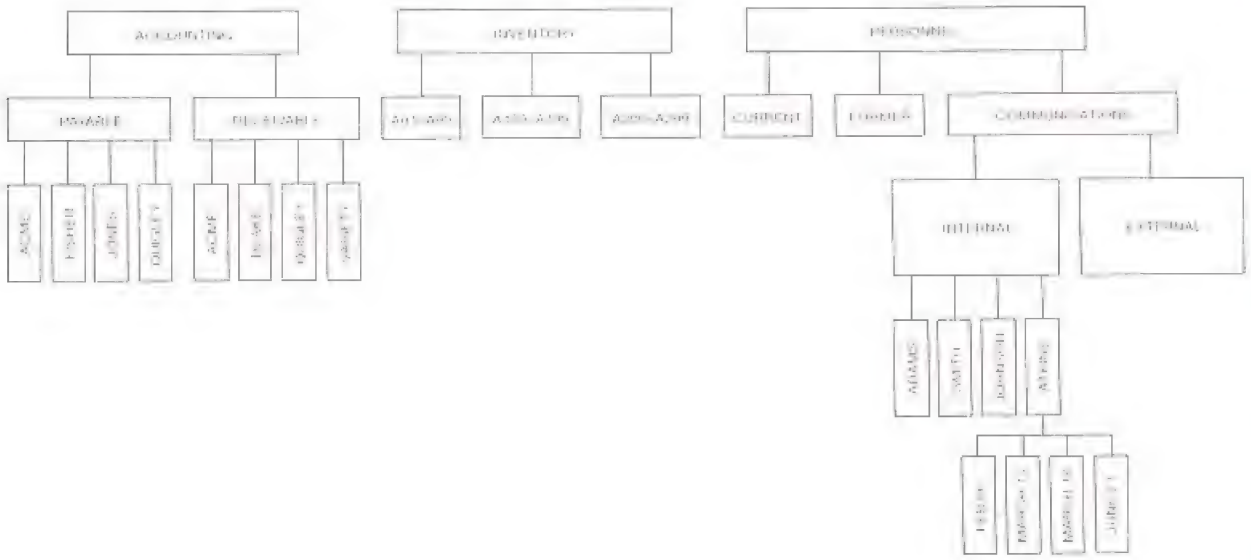
/PERSONNEL/COMMUNICATIONS/INTERNAL/ATKINS/MARCH.15

That's like saying go to the PERSONNEL cabinet, look in the COMMUNICATIONS drawer on the INTERNAL side, find the ATKINS folder, and get the MARCH 15 memo. Or to put it more precisely ProDOS-wise: go to the PERSONNEL volume, look in the COMMUNICATIONS directory, then look in the INTERNAL directory, then look in the ATKINS directory, and get the MARCH.15 file.

ProDOS doesn't know from cabinets, drawers, folders, or memos, but it can maneuver from directory-to-directory-to-file faster than you can say "COFFEE.BREAK."

If you're having trouble visualizing all of this, take a minute to study the diagram in Figure 4-5.

Figure 4-5. The Hierarchy of Widgets' Records



Each file has one pathname, and each pathname refers to only one file. Even if you have two files with the same local name, you can still tell them apart by pathname. For instance, one could be named

/ACCOUNTS/PAYABLE/QUIGLEY

The other could be named

/ACCOUNTS/RECEIVABLE/QUIGLEY

Even though these two files have the same volume name and the same filename, they are different because they have different pathnames.

Don't let the complexity of Widgets' files scare you. You may rarely build hierarchies of such complexity on the Apple II. If you are using flexible disks, you might have different disks for different purposes, and maybe a few directories on each disk, but you'll find that you usually won't need more than one or two levels of directories on any one disk. The important thing is that the capability is there.

Wildcards

A wildcard is a symbol that makes life a whole lot easier when you are using file commands. A wildcard can represent any character or group of characters that you want it to represent—just as the wildcard in a poker game can represent the ace of spades, the king of hearts, or any other card you want it to represent.

You can use wildcards with these file commands: List ProDOS Directory, Copy Files, Rename Files, Delete Files, and Alter Write-Protection.

The Equal Sign Wildcard

One of the two wildcards you can use with file commands is the equal sign (=). When it is used as a part of a pathname, it does strange and wonderful things.

Here's how it works. If you type the filename FR=D, the command you happen to be working with at the time selects all the names starting with *FR* and ending with *D*, regardless of the letters in between. The filenames FRIEND, FRAUD, and FRESH.SQUID all share this file pattern (though it's unlikely they'd share the same directory).

The Question Mark Wildcard

The other wildcard is the question mark (?). It works just like the equal sign wildcard character except that you get a chance to evaluate each file before it is deleted, copied, or whatever.

Here's how it works. Once you indicate that you want to copy or delete a given file pattern, you'll see the name of the first file that fits the pattern with the cursor positioned to the right of the filename. And you'll see this prompt:

```
FOR EACH FILE, ENTER <Y/N> OR <ESC>
```

If you press (N), the operation won't be performed on that particular file, and you'll see the message:

```
CANCELED
```

If you press (Y), the operation will be performed, and you'll see a message like

```
COPIED
```

or

```
DELETED
```

or whatever is appropriate for the command you're using.

Examples of using wildcards are included in Chapter 5: "Copying With a Wildcard" and "Deleting With a Wildcard."

In either case, you'll be asked the same question about each file that fits that pattern.

If you press (ESC), the operation is canceled for the rest of the files.

A Wildcard Example

Here's an example of how you might use wildcards in real life. Say you're writing a cookbook, and you've got a volume filled with recipes. The /DESSERTS volume directory looks, conceptually, like this:

/DESSERTS/
PECAN.PIE
BANANA.BREAD
BAKED.ALASKA
CREPE.SUZETTE
APPLE.CRISP
APPLE.PIE
CHERRY.PIE
GINGER.BREAD
APPLE.PANDOWDY
SUGAR.COOKIE

You decide you'd like to copy all the pie recipes into their own subdirectory named PIES. (Before you can copy files into a new directory, you have to create that directory using the Make Directory command. It's easy, and you'll learn about it in Chapter 5.)

If it weren't for the wildcard, you'd have to use the Copy Files command three times: once for APPLE.PIE, once for PECAN.PIE, and once for CHERRY.PIE.

But you can replace CHERRY, PECAN, and APPLE with a wildcard character, as in =PIE, and the Copy Files command will copy every file in the directory ending in *PIE*.

Here's what your volume would look like after the copy files operation:

/DESSERTS/
PECAN.PIE
BANANA.BREAD
BAKED.ALASKA
CREPE.SUZETTE
APPLE.CRISP
APPLE.PIE
CHERRY.PIE
GINGER.BREAD
APPLE.PANDOWDY
SUGAR.COOKIE
PIES/
  PECAN.PIE
  APPLE.PIE
  CHERRY.PIE

But you don't want two copies of your pie recipes on the same volume. So now you can use the Delete Files command with a wildcard and clean up your disk.

Deleting is always riskier than copying, so you'll probably want to use the question mark wildcard—it lets you confirm that you really want to delete the file before doing it. This is a good idea in case a file you don't really want to delete fits the pattern formed with the wildcard.

So this time use /DESSERTS/?PIE with the Delete Files command. You will see the name of the first file that fits the pattern

```
/DESSERTS/PECAN.PIE
```

and the message

```
FOR EACH FILE, ENTER <Y/N> OR <ESC>
```

Press [Y] because you really do want to delete the file. You will have to confirm the command for each file that fits the pattern.

After deleting the extra files, your volume will look like this:

```
/DESSERTS/
BANANA.BREAD
BAKED.ALASKA
CREPE.SUZETTE
APPLE.CRISP
GINGER.BREAD
APPLE.PANDOWDY
SUGAR.COOKIE
PIES/
   PECAN.PIE
   APPLE.PIE
   CHERRY.PIE
```

You can use a wildcard character in the middle of a filename (FR=D), at the beginning of a filename (=PIE), or at the end of a filename (APPLE=).

You can even use the wildcard character to represent all the files in a directory. Let's say the test kitchen needs a copy of every recipe in your dessert directory. All you have to do is type

```
/DESSERTS/=
```

and all the files in that directory will be copied.

The only real restriction on your use of wildcards is that you can only use one wildcard and it can only be in the last name (filename) of the pathname. If you try to use more than one wildcard in a pathname, you'll get this error message:

```
ILLEGAL WILDCARD
```

The Filer won't let you type pathnames with illegal wildcards.

Summary of Chapter 4

File: An orderly collection of information on a disk accessed by a filename.

Directory File: A file that contains the names of other files.

Filename: A filename can be the name of a data file or the name of a directory file. Filenames can be up to 15 characters long. The first character must be a letter. The rest of the characters can be letters, numbers, or periods.

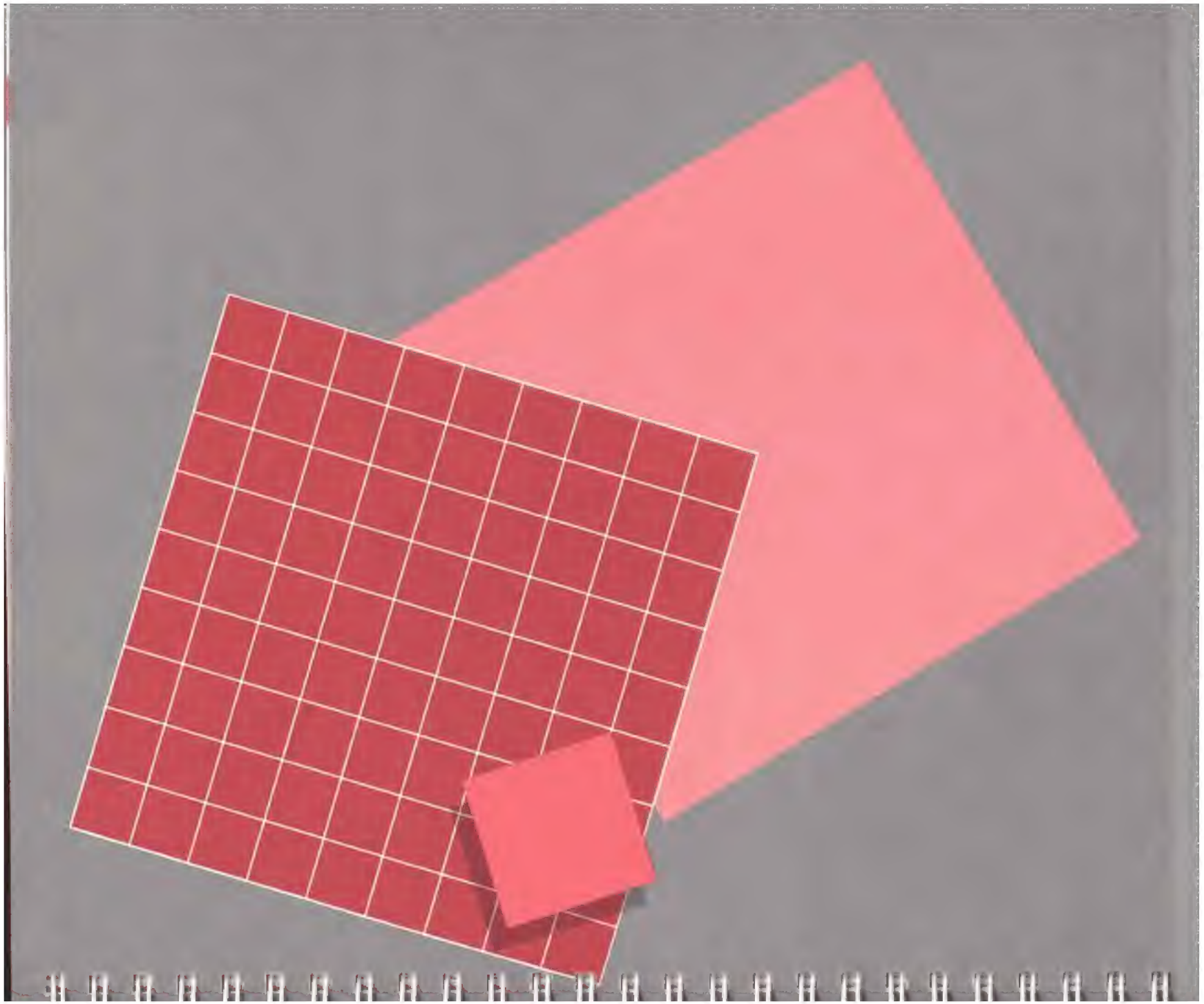
Pathname: A pathname is a volume name followed by a series of filenames. The whole pathname is preceded by a slash, and the component names within the pathname are separated by slashes, which act as delimiters. The pathname tells ProDOS what path to take to a given file.

Prefix: A stored pathname (ending with a slash) that specifies part of the pathname. Once you set a prefix, you can refer to any file in the named directory or subdirectory by filename alone.

Wildcard: A character (= or ?) that represents other characters in a pathname. It can be used with the List ProDOS Directory, Copy Files, Rename Files, Delete Files, and Alter Write-Protection file commands.

Chapter 5

Using the File Commands



Using the File Commands

File Commands

File commands are those that affect individual files. You can use file commands to list, copy, rename, delete, or otherwise alter one file (or files) on a volume without disturbing the rest. This chapter explains how to use each of the file commands in the ProDOS Filer.

See Chapter 4 for an explanation of the terminology associated with the file commands.

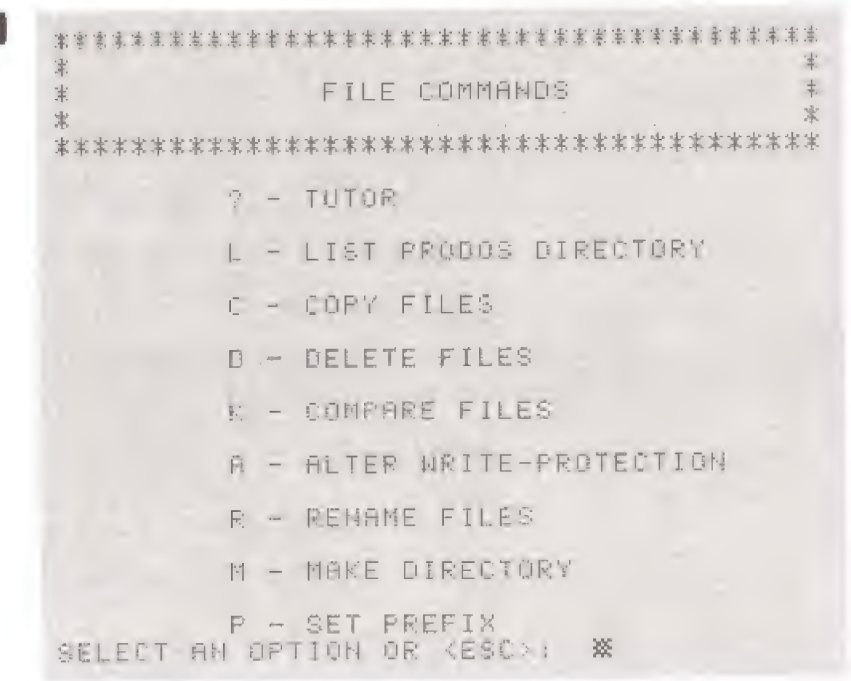


Figure 5-1. The File Commands Menu

Here's a list of the commands (or options) on the File Commands Menu, shown in Figure 5-1, and a short description of what they're for:

Command	What It Does
List ProDOS Directory	Gives you a list of all the files in the directory you name, tells you each file's type, its write-protect status, how many **blocks** the file takes up on the volume, modification date, and a summary of how many blocks in the volume directory are free and how many are used.
Copy Files	Lets you create an exact duplicate of the file or files you name.
Delete Files	Lets you remove an outdated file or files from a volume without affecting the rest of the files on the volume.
Compare Files	Gives you a byte-by-byte comparison of any two files you name.
Alter Write-Protection	Lets you lock or unlock a file or files.
Rename Files	Lets you rename a file or files without altering the file's contents.
Make Directory	Lets you create subdirectories.
Set Prefix	Lets you designate a partial pathname as a prefix so that you don't have to type the entire pathname every time you want access to a file.

A **block** is a unit of information 512 bytes long.

Pathnames Review: You'll be using pathnames to indicate which file you want to delete, copy, or rename. So if you're not sure what a pathname is, take a minute to review before you press on.

As the name implies, a pathname is the route ProDOS takes to get to a file. If your file is nested in a directory, within a directory, within a directory, just start from the most general directory and work your way in to until you end with the name of the file.

If all your files are lumped under the volume directory and you don't use subdirectories, your pathnames will have only two components: the volume name and the filename.

If you need a more thorough review, go back and reread Chapter 4. If you understand pathnames, go ahead and look at each file command in more detail.

Set Prefix

Setting a prefix means storing part of a pathname. Once you've stored your partial pathname, you never need to type that part of the name again. It remains the same until you change it or turn off the computer.

The current prefix is shown at the top of every File Command display. When you turn on your computer, the prefix is automatically set to the name of the startup disk—in this case, \USERS.DISK\.

Whether the prefix is added to what you supply depends on whether the first character you type is a slash. When the first character is not a slash, the Filer employs the prefix as the first part of the pathname. When the first character is a slash, the Filer ignores the prefix, and you must type a complete pathname.

Here are some simple rules to follow:

- When you want to use the set prefix, just type the remainder of the pathname. Do not start with a slash.
- When you don't want to use the set prefix, type the complete pathname, starting with a slash.
- Use the Set Prefix command to change the prefix.

Important! If you change the prefix while using the Filer, you should send the prefix back to the name of your startup disk before leaving the Filer for another part of the *ProDOS User's Disk*.

Put the *User's Disk* (or your startup disk) in drive 1 and then select the Set Prefix option on the File Commands Menu.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Menu.
3. Press (P) (for SET PREFIX) from the File Commands Menu. You'll see the display shown in Figure 5-2.

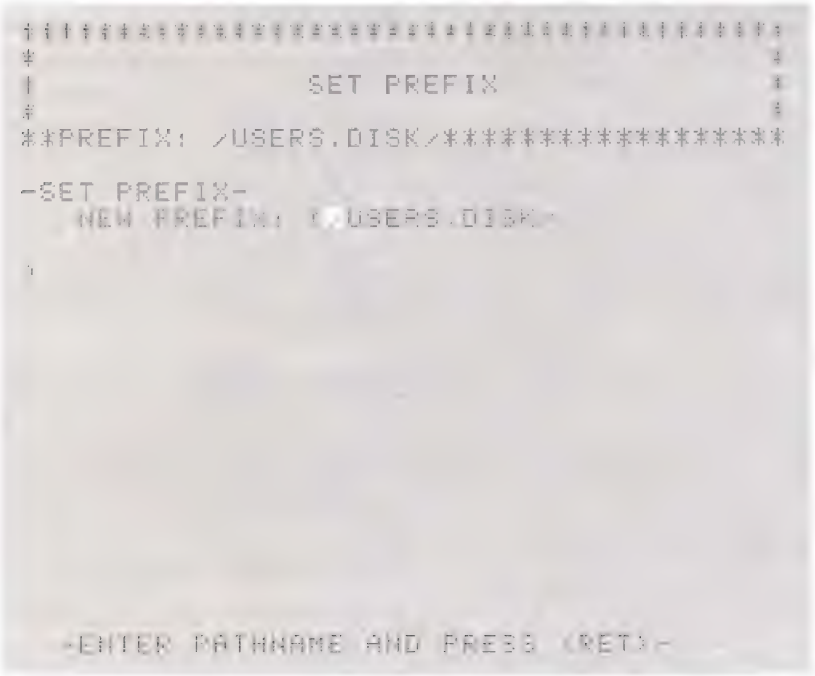


Figure 5-2. Set Prefix Display

4. Now you can type a new prefix, or edit the default prefix, which is shown on the display next to NEW PREFIX:.

To enter an entirely new prefix, type a slash, the volume directory name, and any number of other directory names, each separated by a slash. When you're finished entering your prefix, press (RETURN). (If you forget to include the trailing slash, ProDOS will supply it for you.)

If you choose to edit the existing prefix, you have five options:

- You can accept the default unchanged. Press (RETURN).
- You can do away with the prefix altogether. Type a slash and then press (RETURN). This is called a **null prefix**.
- You can add directories to the current prefix. Press (→) to move the cursor to the end of the prefix, then type the directories, and press (RETURN) to indicate that you've finished setting the prefix.
- You can change one or two characters in the current prefix. Move the cursor to the character(s) you want to change, type in the changes, advance the cursor to the end of the name by pressing (→), then press (RETURN).
- You can cancel your new prefix midstream. Press (ESC). The old default will be restored with the cursor on the first character.

Note: Even if you don't use subdirectories to organize your files, you'll save time by setting your volume name as the prefix. That way when you're asked to supply a pathname, all you'll have to type is the filename.

If something goes wrong while you're setting your prefix, you'll see an error message. If you're not sure what the message means or what to do about it, consult Appendix A.

List ProDOS Directory

If you want to find out what's in a book, you turn to the Table of Contents. If you want to find out what's on a disk, you turn to the directory.

The List ProDOS Directory command not only gives you a list of the files in a given directory, it also tells you

- the directory name
- the type of file (binary, text, etc. See Table 5-1)
- the size of each file (in 512-byte blocks)
- write-protect status (files that are **locked** or **protected** are preceded by an asterisk)
- modification date
- number of blocks that are available and the number of blocks that are used on the disk.

A **locked** file is one that cannot be changed or deleted. It is also said to be **protected**.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (L) (for LIST PRODOS DIRECTORY) from the File Commands Menu. You'll see the display shown in Figure 5-3.

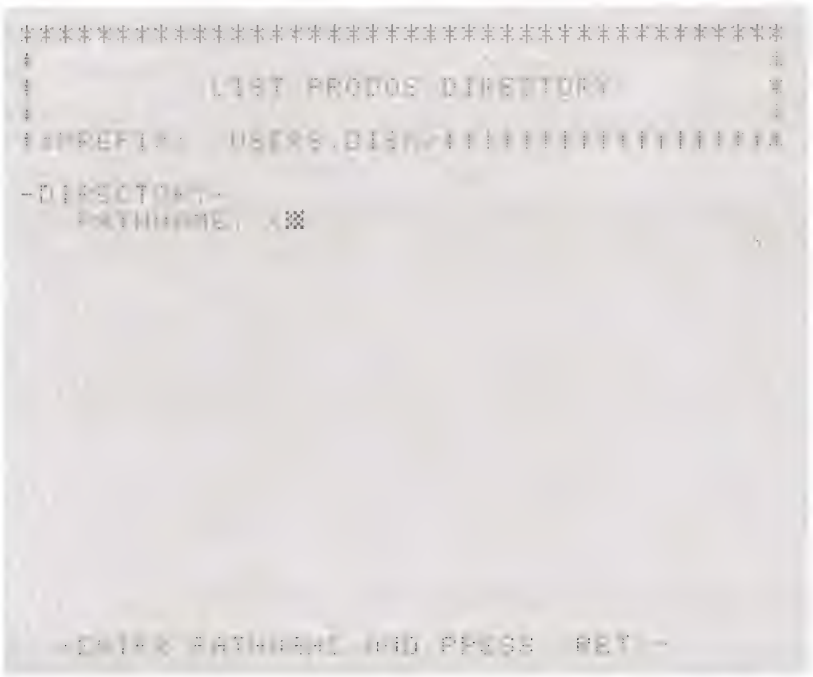


Figure 5-3. List ProDOS Directory Display

ProFile Note: If you're listing the directory of a ProFile disk, skip to step 5.

4. Put the volume containing the directory you want to list in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the volume whose directory you want to list.
5. Type the pathname of the directory you want to list (or partial pathname if the appropriate prefix is set) and press (RETURN). If the prefix is set to the directory you want to list, just type = and press (RETURN).

You'll see a display similar to Figure 5-4. Information about all the files one level below the directory you specified is given.

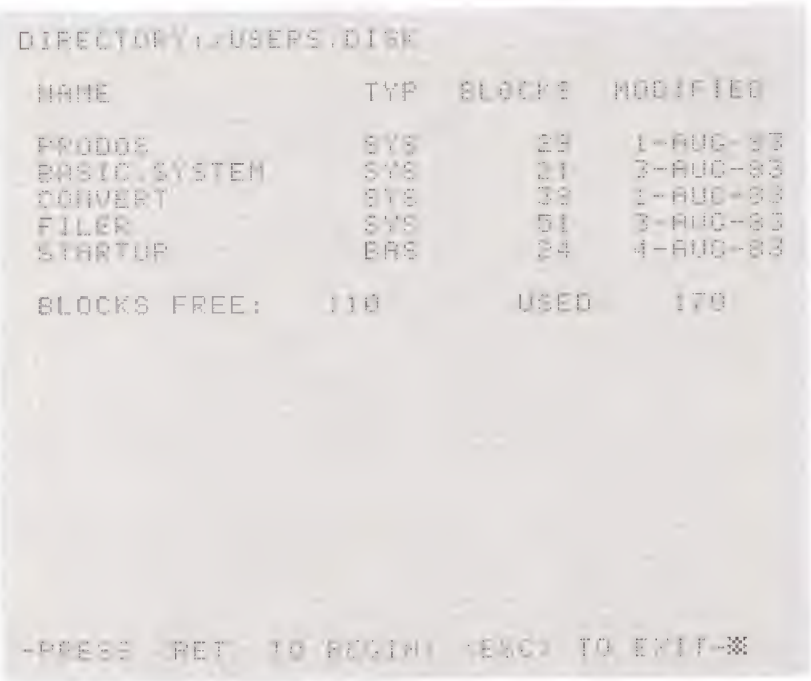


Figure 5-4. Directory of *ProDOS User's Disk*. Since the prefix was set to /USERS.DISK/, the equal sign wildcard was typed to produce this directory.

Note: You can produce a printed copy of directory information by changing the output device from the video monitor to your printer. The procedure is described in Chapter 6, "Configuration Defaults." Even if you change the output device to your printer, you'll still get the listing on your monitor.

If you type ?, you'll see only the number of blocks free and the number of blocks used on the disk.

If you don't see a listing of the files in the directory you specified, you probably got an error message. If you're not sure what the message means or what to do about it, consult Appendix A.

Table 5-1. File Types

Abbreviation	File Types
$00	Typeless File
BAD	Bad Block File
PCD	Pascal Code
PTX	Pascal Text
PDA	Pascal Data
TXT	ASCII Text
BIN	Binary
FNT	Font File
FOT	Graphics Screen File
BA3	Business BASIC Program File
DA3	Business BASIC Data File
WPF	Word Processor File
SOS	SOS (Apple III) System File
RPD	RPS Data File
RPI	RPS Index File
DIR	Directory
$12-$BF	SOS Reserved
CMD	ProDOS Added Command File
$F1-$F8	ProDOS User Defined File 0-9
$F9	ProDOS Reserved
INT	Integer BASIC Program
IVR	Integer BASIC Variables
BAS	Applesoft Program
VAR	Applesoft Variable
REL	Relocatable Code
SYS	ProDOS System File
C0-EF	ProDOS Reserved

Copy Files

This command lets you copy a file from one directory to another on the same volume or from one volume to another.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (C) (for COPY FILES) from the File Commands Menu. You should see the display shown in Figure 5-5.

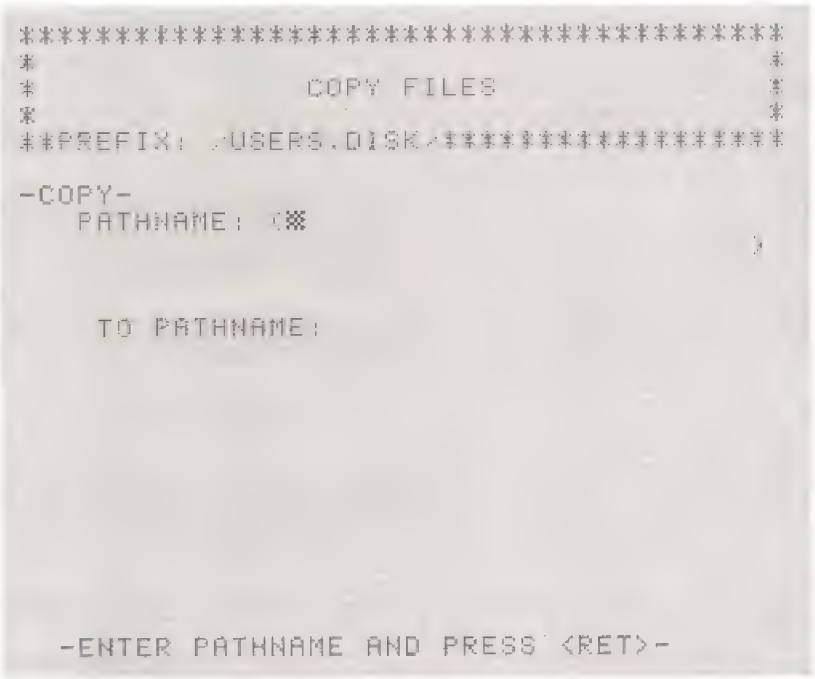


Figure 5-5. Copy Files Display

ProFile Note: You can copy a file from a flexible disk to a ProFile disk, or from a ProFile disk to a flexible disk. Just make sure the disk you want to copy is in one of the available drives. You don't have to worry about the ProFile disk, it's always in place.

If you're copying a file from a ProFile disk to a flexible disk, keep in mind that the flexible disk can't accommodate files greater than 280 blocks.

Skip to step 5.

4. Put the volume containing the file you want to copy in any available drive. Put the formatted volume you want to copy the file onto in any other available drive.

If you have a one-drive system, take out the *User's Disk* and replace it with the volume containing the file you want to copy. If you're copying onto a second volume, watch for prompts on the screen telling you when to replace your **source** volume with the **destination** volume.

The **source** volume is the original. The **destination** volume is the copy.

If you have two drives, put the volume you want to copy a file from into drive 1 and the volume you want to copy to in drive 2.

5. Type in the pathname of the source file (or the partial pathname if the appropriate prefix is set), and press (RETURN). The cursor will jump down to the next pair of parentheses.
6. Type in the pathname of the destination file (or the partial pathname if the appropriate prefix is set), and press (RETURN).

Note: You can't copy files into a new subdirectory without first creating that directory. You do that by using the Make Directory command explained later in this chapter.

If the destination pathname duplicates a name already in the destination directory, you'll get this message:

```
DELETE EXISTING FILE? (Y,N)
```

If you knew that the file was already present in the destination directory, you can go ahead with the copy by pressing (RETURN), but keep in mind that you'll be replacing the existing file.

Press (N) (for *No*) if you want to leave the existing file intact.

If you want to cancel the copy operation altogether, press (ESC).

If all goes well, you'll see this message:

```
COPY COMPLETE
```

Copying With a Wildcard

Let's say you're writing a novel and you have a volume directory that looks like this:

```
/NOVEL/
        CHAP1A
        CHAP1B
        CHAP1C
        CHAP1D
        CHAP2A
        CHAP2B
        CHAP3A
        CHAP4A
```

You decide you'd like to copy all the Chapter 1 files into their own directory called FIRST.CHAP, which you've already created by using the Make Directory command.

So you type

```
/NOVEL/CHAP1=
```

for your source pathname (step 5) and

```
/NOVEL/FIRST.CHAP/CHAP1=
```

for your destination pathname (step 6). All the files beginning CHAP1 are copied into your /FIRST.CHAP directory. Notice that you used the same wildcard in the same place in the filename.

Here's how the two directories look after the copy operation:

```
/NOVEL/                 FIRST.CHAP/
        CHAP1A                  CHAP1A
        CHAP1B                  CHAP1B
        CHAP1C                  CHAP1C
        CHAP1D                  CHAP1D
        CHAP2A
        CHAP2B
        CHAP3A
        CHAP4A
```

If you type

```
/NOVEL/FIRST.CHAP/CHAP1?
```

as your source pathname (step 5) and

```
/NOVEL/FIRST.CHAP/CHAP1?
```

you have a chance to evaluate each file before copying it into the FIRST.CHAP directory. You see the name of the first file that fits the CHAP1 pattern, with the cursor positioned to the right of the filename, like this:

If you press [Y] (for *yes*), the file is copied. If you press [N] (for *no*), the file is not copied. Either way, ProDOS goes on to the next file that fits the pattern until you've evaluated them all.

Chapter 4 presents a more thorough explanation of wildcards.

Once you have copied all the files into the new subdirectory, you could use a wildcard with the Delete Files command to delete the extra files.

If you press [ESC] at any time during this process, the copy operation is canceled, and the cursor returns to the top of the Copy Files display.

If something goes wrong during the copy files operation, you'll get an error message. If you're not sure what the message means or what to do about it, consult Appendix A.

Delete Files

This command lets you get rid of outdated files. It's like spring cleaning, only ProDOS does all the work.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (D) (for DELETE FILES) from the File Commands Menu. You should see the display shown in Figure 5-6.

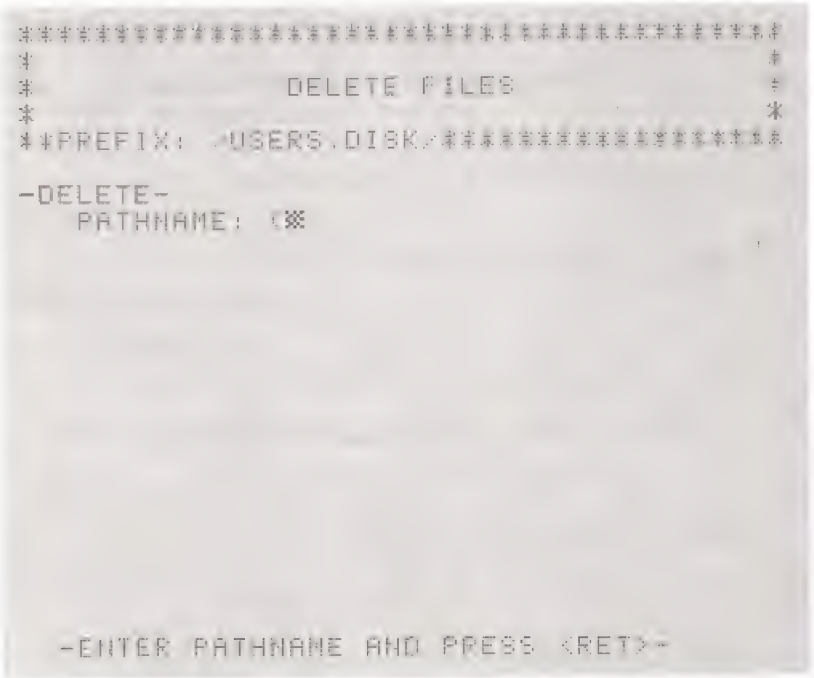


Figure 5-6. Delete Files Display

ProFile Note: If you're deleting a file from a ProFile, skip to step 5.

4. Put the volume containing the file or files you want to delete in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the volume containing the file you want to delete.
5. Type the pathname of the file you want to delete (or the partial pathname if the appropriate prefix is set), then press (RETURN).

If all goes well, you'll see this message:

```
DELETE COMPLETE
```

Note: A directory must be empty before you can delete it. And you can never delete a volume directory—even if it's empty. The only way to get rid of the volume directory is to reformat the disk.

Deleting With a Wildcard

Let's say you want to delete all of last year's memos from your PAPERWORK volume. Your directory looks like this:

```
/PAPERWORK/
      JONES.MEMO
      JONES.CONTRACT
      SMITH.MEMO
      SMITH.REVIEW
      BROWN.LETTER
      BROWN.MEMO
```

If you type

```
/PAPERWORK/=MEMO
```

for your pathname (step 5), all the files ending in MEMO will be deleted, and you'll get a listing of all the deleted files along with the message

```
DELETE COMPLETE
```

Here's how your /PAPERWORK directory looks after the delete operation:

```
/PAPERWORK/
      JONES.CONTRACT
      SMITH.REVIEW
      BROWN.LETTER
```

If you type

```
/PAPERWORK/?MEMO
```

for your pathname (step 5), you can evaluate each memo before deciding whether to delete it or not. You see the name of the first file that fits the MEMO pattern, with the cursor positioned to the right of the filename, like this:

If you press [Y] (for *yes*), the file is copied. If you press [N] (for *no*), the file is not copied. Either way, ProDOS goes on to the next file that fits the pattern until you've evaluated them all.

If you press (ESC) at any time during this evaluation process, the delete operation is canceled, and the cursor returns to the top of the Delete Files display.

Chapter 4 presents a more thorough explanation of wildcards.

If you hit a snag trying to delete files, you'll get an error message. If you're not sure what it means or what to do about it, consult Appendix A.

Compare Files

This command lets you check to see if a copied file is identical to the original. It's a good way to find out if you updated one file, but forgot to update the duplicate copy. If you find that your copy isn't the same as the original, but you're sure it's the same version, you might want to check for bad blocks.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (K) (for COMPARE FILES) from the File Commands Menu. You'll see the display shown in Figure 5-7.

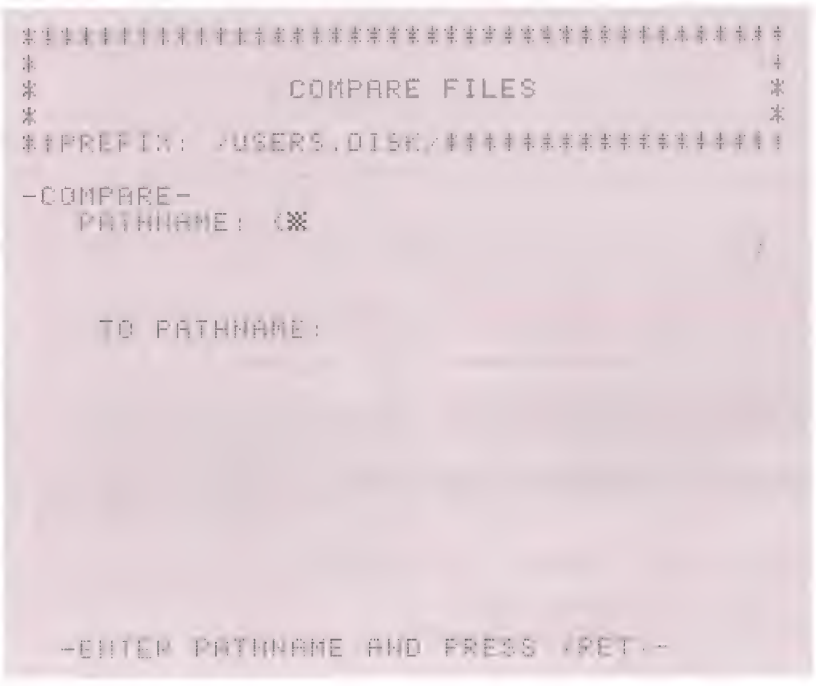


Figure 5-7. Compare Files Display

ProFile Note: If you're comparing two files on a ProFile, skip to step 5. If you're comparing a file on a ProFile to a file on a flexible disk, make sure the flexible disk is in one of your disk drives and skip to step 5.

4. Put the volume containing the files you want to compare in any available drive. If the files you want to compare are on two different volumes, replace your *User's Disk* with one of the two volumes, and put the other volume in drive 2. If you have a one-drive system and you want to compare files on two different volumes, you'll have to do some disk swapping. Don't worry, prompts on the display will tell you which volume to insert when.
5. Type in the pathname of one of the files you want to compare (or partial pathname if the appropriate prefix is set), then press (RETURN). The cursor will jump down to the next pair of parentheses.
6. Type in the pathname of the second of the files you want to compare (or partial pathname if the appropriate prefix is set), and press (RETURN).

If all goes well, and there are no mismatching bytes, you'll get this message:

```
COMPARE COMPLETE
```

If there are mismatching bytes, you'll get this message:

```
FILES DO NOT MATCH
```

If you don't see one of those two messages, you'll get an error message. If you're not sure what the message means, or what to do about it, consult Appendix A.

Alter Write-Protection

When you **lock** or protect a file it cannot be changed or deleted. When you **unlock** or remove protection from a file it can be changed or deleted.

This command lets you lock or unlock files.

Every file on a volume has an access indicator that tells the computer whether that file can be changed or not. When the file is locked, you can read what's in it, but you can't add to it, delete from it, rename it, or otherwise monkey with it. Literally, the file is protected from getting written on (or written-off, for that matter). When the file is unlocked, you can do anything you want with it.

Here's How

1. Get to the Filer Menu.
2. Press [F] (for FILE COMMANDS) from the Filer Menu.
3. Press [A] (for ALTER WRITE-PROTECTION) from the File Commands Menu. You should see the display shown in Figure 5-8.

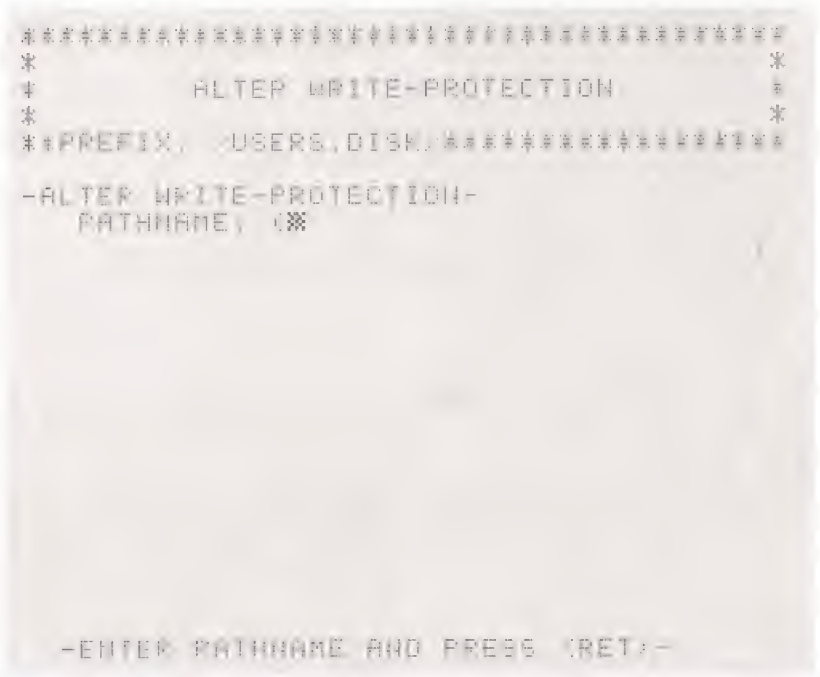


Figure 5-8. Alter Write-Protection Display

ProFile Note: If you're altering the protection status of a file on a ProFile, go on to step 5.

4. Put the volume containing the file you want to lock or unlock in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the relevant volume.
5. Type in the pathname of the file you want to lock or unlock (or the partial pathname if the appropriate prefix is set), then press [RETURN]. You'll see

   LOCK FILES? (Y/N)

6. If you want to protect the file in question, press [Y] (for *Yes*). If you want to unlock the file, press [N] (for *No*).

If all goes well, you'll get this message: LOCK (OR) UNLOCK COMPLETE. If you hit a snag, you'll get an error message. If you're not sure what it means or what to do about it, consult Appendix A.

You can use wildcards to alter write protection. The procedure is the same as that for deleting files using a wildcard. See "Deleting With a Wildcard."

Rename Files

This command lets you rename a file without changing its contents.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (R) (for RENAME FILES) from the File Commands Menu. You'll see the display shown in Figure 5-9.

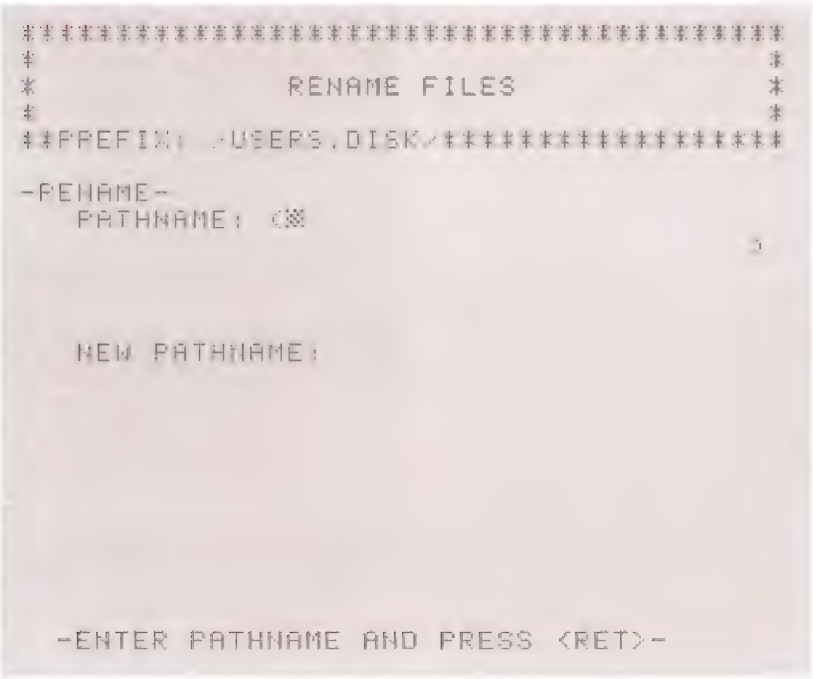


Figure 5-9. Rename Files Display

ProFile Note: If you're renaming a file on a ProFile, go on to step 5.

4. Put the volume containing the file you want to rename in any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the relevant volume.
5. Type the pathname of the file that you want to rename (or the partial pathname if the appropriate prefix is set), and press (RETURN). The cursor will jump down to the next pair of parentheses.
6. Type the new pathname you've chosen for your file, and press (RETURN). (You only need to type the filename. It's assumed that you are renaming it to the same directory because you can't rename a file from one directory to another.)

If all goes well, you'll get this message:

```
RENAME COMPLETE
```

If you chose a name that's already in the directory, you'll get this message:

```
DUPLICATE FILENAME
```

and you'll have to start over.

If you have problems renaming your files, you'll get an error message. If you're not sure what the message means, or what to do about it, consult Appendix A.

You can use wildcards to rename files. The procedure is the same as that for copying files. See "Copying With a Wildcard."

Make Directory

When you first format a disk, two things happen: the disk's recording surface is divided into blocks and sectors where information can be stored, and the disk gets a volume directory.

Subdirectories, on the other hand, are not created as part of the formatting process. You have to create them with the Make Directory command before you can save files into them.

Here's How

1. Get to the Filer Menu.
2. Press (F) (for FILE COMMANDS) from the Filer Menu.
3. Press (M) (for MAKE DIRECTORY) from the File Commands Menu. You'll see the display shown in Figure 5-10.

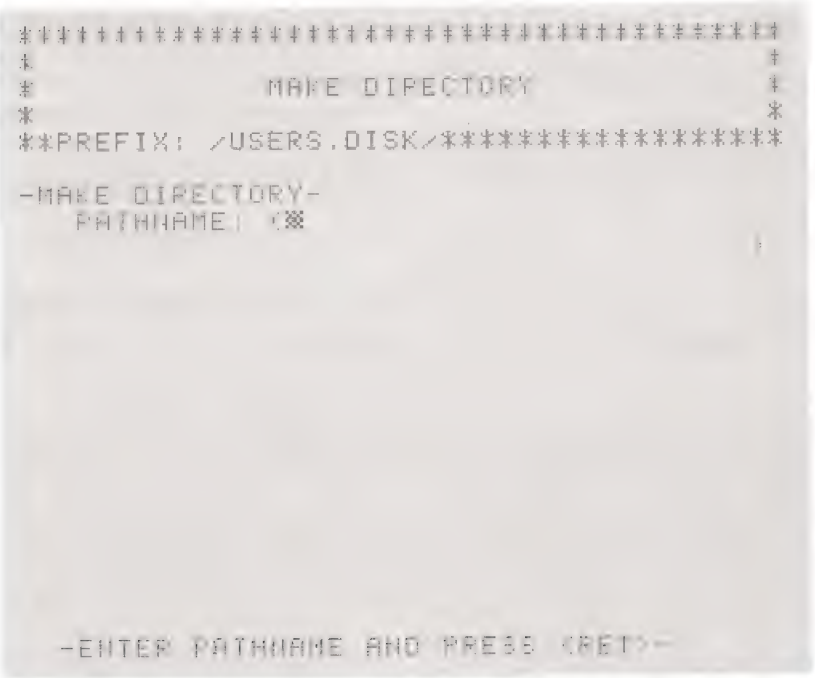


Figure 5-10. Make Directory Display

ProFile Note: If you're creating a directory on a ProFile disk, skip to step 5.

4. Put the volume on which you want to make a directory into any available drive. If you have a one-drive system, take out the *User's Disk* and replace it with the relevant volume.
5. Type the pathname of the directory you want to create (or the partial pathname if the appropriate prefix is set), and press (RETURN).

The Filer checks to make sure there is room on the disk and in the directory for your new directory. If there is, and if the disk is not write protected, you'll get this message:

```
MAKE DIRECTORY COMPLETE
```

If there's a hitch, you'll see an error message. If you're not sure what the message means, or what to do about it, consult Appendix A.

Note: There is a limit to the number of files that can be included in the volume directory—51. Because the files can also be subdirectories, this should not present a problem. Besides, most people run out of room on the disk before they run out of room in a directory.

Summary of Chapter 5

Set Prefix

The Set Prefix command sets the system prefix so that you can use abbreviated pathnames when referencing files.

You supply

- the new prefix (no wildcard permitted).

The current prefix is supplied as a **default**. The cursor is positioned on the first character of the current prefix. To accept the default, press [RETURN]. To do away with the prefix altogether, type a slash (/) and press [RETURN]. To add additional directories to the existing prefix, press [→] to move the cursor to the end of the prefix, type in the new directories, and press [RETURN]. To set an entirely new prefix, type a slash (/), and type in the new pathname. If you're entering a new pathname and decide to cancel your entry, press [ESC] and the default prefix will return to the display with the cursor on the first character.

Once you've specified the prefix, you only need to supply the remainder of the pathname when asked for the pathname while using other file commands.

List ProDOS Directory

The List ProDOS Directory command lists the contents of a ProDOS directory.

You supply

- the pathname of the directory you want to list. This can be either a volume directory or a subdirectory (wildcard permitted in place of name when a prefix is set).

ProDOS checks the disk to provide information on all files one level below the directory that you specify. The listing shows the directory name, the file types, the number of 512-byte blocks, the write-protect status, and, for each file, the name and the modification date. You'll also get information concerning block allocation for the volume: the number of available blocks and the number of used blocks.

Copy Files

The Copy Files command lets you copy a file or files from one directory to another.

You supply

- the source (original) pathname (wildcard optional)
- the destination (copy) pathname (wildcard optional)
- confirmation of your desire to copy if you used the question mark wildcard
- confirmation of your desire to copy if the destination pathname duplicates a pathname in the destination directory.

Once you fill in the blanks on the display, the file described by the source pathname is duplicated and assigned to the destination pathname.

Delete Files

The Delete Files command removes a file or files from a directory or subdirectory. It also removes empty subdirectories.

You supply

- the pathname of the file or files you want to delete (wildcard optional)
- confirmation of your desire to delete if you use the question mark wildcard.

Assuming the disk is not write protected, the Filer deletes the unlocked file or files. You cannot delete locked files. If a file is locked, you must use the Alter Write-Protection command to remove the protection before deleting.

Once the file or files are deleted, you can use the area on the volume for other files.

A directory must be empty before you can delete it, otherwise you'll get an error message. You can't delete volume directories.

Compare Files

The Compare Files command compares any two files you specify.

You supply

- the pathnames of the two files you want to compare.

The two files you specify are accessed for a byte-by-byte comparison. ProDOS also checks for type of file, kind of file, end of file, and number of blocks in file. If a mismatching byte is found, you'll get a message indicating that the files don't match.

Alter Write-Protection

When you **lock** or protect a file it cannot be changed or deleted. When you **unlock** or remove protection from a file it can be changed or deleted.

The Alter Write-Protection command locks or unlocks files.

You supply

- the pathname of the file or files you want to lock or unlock (wildcard optional)
- whether to lock or unlock the file in question
- confirmation to lock or unlock if you used the question mark wildcard character.

When you lock a file, the Filer prevents the file from being deleted, renamed, or otherwise modified.

When you unlock a file, the Filer removes the write-protect flag so that the file can be modified using other file commands.

You can find out which files are locked or unlocked by using the List ProDOS Directory command. Locked files have an asterisk to the left of the file's name.

Rename Files

The Rename Files command changes the existing filename or directory to the pathname you specify.

You supply

- the pathname you want to change (wildcard optional)
- the new pathname (you don't need to type the full pathname, only the filename; it's assumed that the directory name(s) will remain unchanged because you can't rename a file to a different volume or directory)
- confirmation of your desire to rename the file if you used the question mark wildcard.

You can also use this command to rename a volume.

Make Directory

The Make Directory command lets you create directories.

You supply

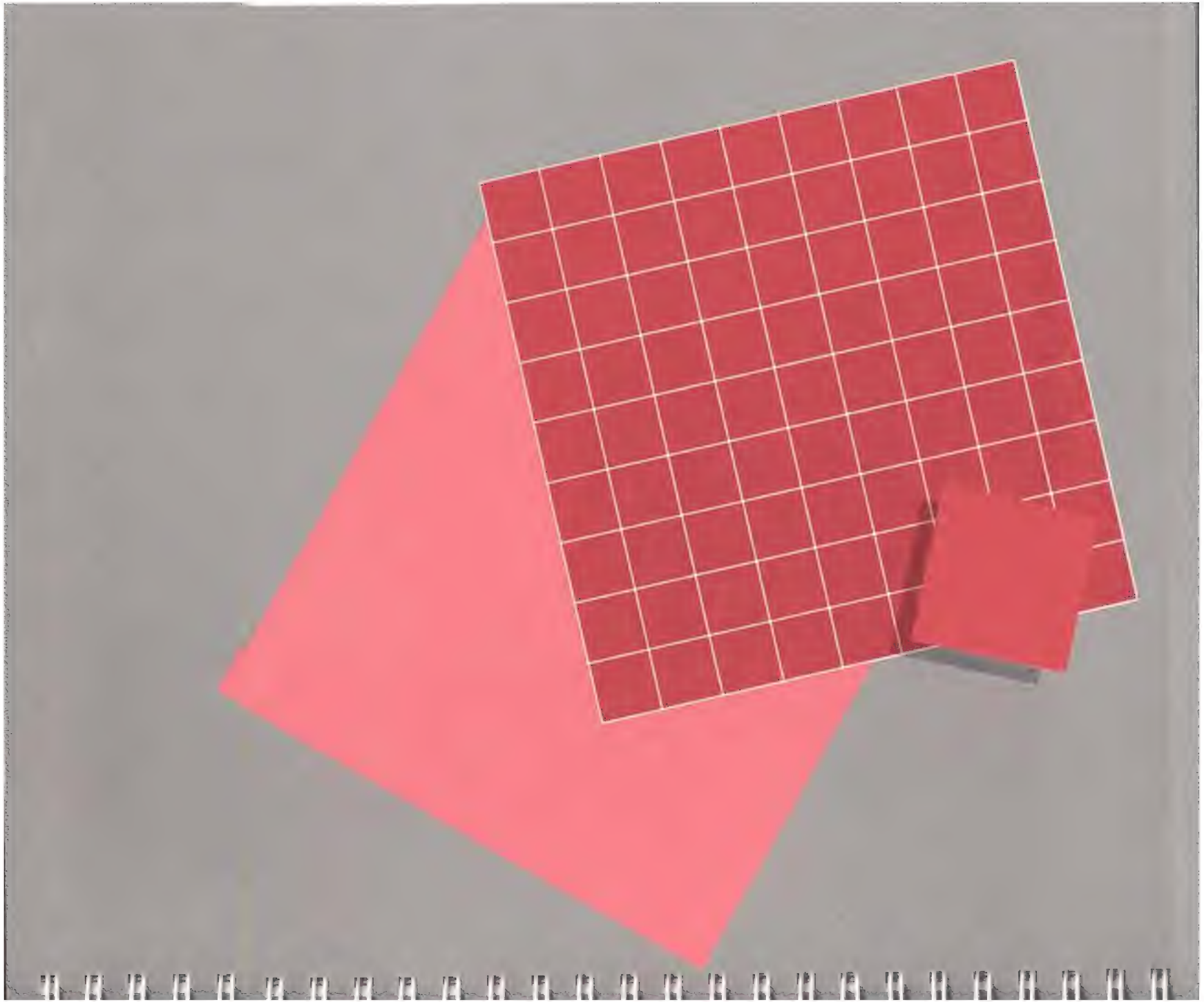
- the pathname of the directory you want to create.

The disk is checked to see if there is enough room on the disk and within the directory to create another directory. If there is room on the disk and in the directory, if the disk is not write-protected, and if the directory doesn't already exist, the directory will be created.

Note: There is a limit to how many files can be included in the volume directory—51. Because the files can also be subdirectories, this should not present a problem. Besides, most people run out of room on the disk before they run out of room in a directory.

Chapter 6

Configuration Defaults



Configuration Defaults

A **default** is an answer supplied by the program. A **configuration default** is a default that applies to your system setup.

A **default** is the programmer's guess as to how you'll answer a question or fill in a blank in his program. **Configuration defaults** are the programmer's assumptions about how you have your system set up. The ProDOS Filer assumes that you have two disk drives hooked up to slot 6, that you want drive 1 to be your source disk drive and drive 2 to be your destination disk drive, and that you want all output sent to the video monitor (as opposed to a printer).

Defaults are meant to be a convenience, but they're no convenience if the programmer's assumptions don't suit you or fit your system configuration. Fortunately, you can customize the defaults in the ProDOS Filer using the configuration defaults commands described in this chapter. From the Filer Menu, press (D) (for CONFIGURATION DEFAULTS). You will see the Configuration Defaults Menu shown in Figure 6-1.

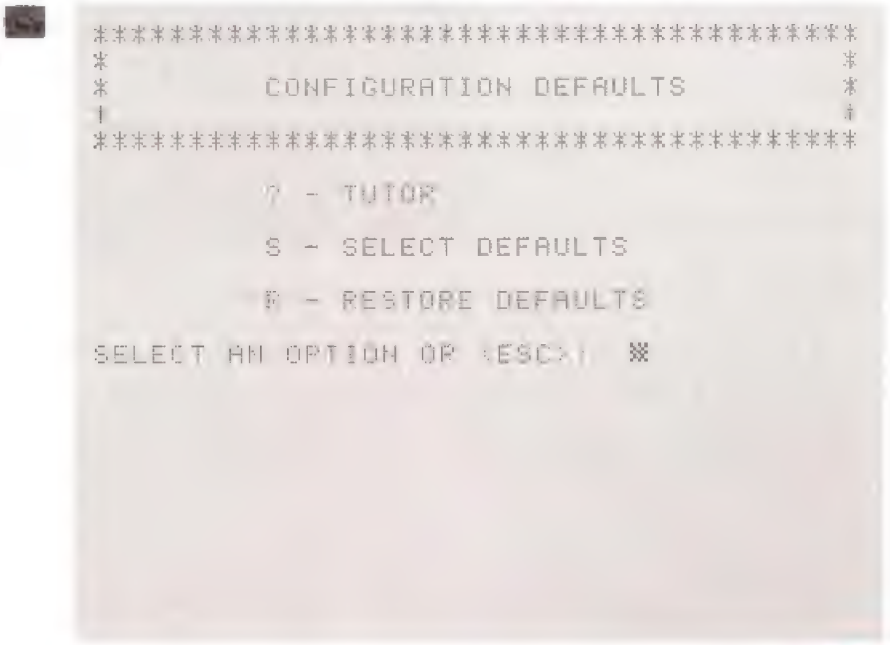


Figure 6-1. Configuration Defaults Menu

Warning
As you select the defaults for your system configuration, the values are written out to the Filer—so the *ProDOS User's Disk* must be in drive 1 throughout the operation.

Select Defaults

The Select Defaults command lets you select new defaults for the Filer.

Press (S) (for SELECT DEFAULTS) from the Configuration Defaults Menu. You'll see the display shown in Figure 6-2.

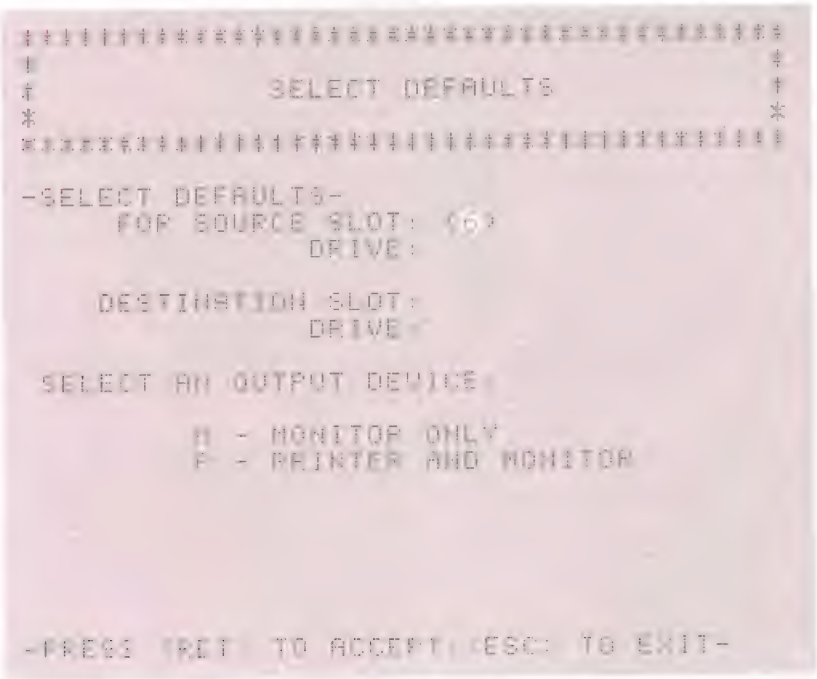


Figure 6-2. Select Defaults Display

How you fill in this display depends on how your system is set up. If you don't remember how your disk drives are connected to your Apple II, go back to the Filer Menu, press [Q] to select the Quit option, press [RETURN]. You should see the *User's Disk* Main Menu. Press [S] to select the Display Slot Assignments option. You'll see which slots hold your disk controller card and printer controller card (if you have one).

The following sections discuss the the defaults you can customize.

Source Slot

The source slot is the one the Filer looks at first. The Filer assumes the original disk will be in a disk drive connected to this slot.

If your source disk drive is hooked up to slot 6, accept the system default value by pressing [RETURN]. If it's not, type in the appropriate number and it will become the new source slot default.

Note: Once you press [RETURN] or type a new entry, the cursor (the little white box that marks your place on the display) jumps down to the next default. If you make a mistake and want to start over, press [ESC] and the cursor will return to the first line.

Source Drive

The source drive is where the Filer expects to find your original volume or file.

If your source disk drive is drive 1, you can accept the system default by pressing [RETURN]. If it's not, type in the appropriate drive number and it will become the new source drive default.

Destination Slot

The destination slot is where the Filer will send the information it takes from the disk in the source drive.

If your destination disk drive is hooked up to slot 6, accept the existing default by pressing [RETURN]. If it's not, type in the appropriate slot number and it will become the new destination slot number.

Destination Drive

The destination drive is where the Filer expects to find the disk that becomes the copy. It is where the information will end up.

If your destination disk drive is drive 2, accept the existing default by pressing [RETURN]. If it's not, type in the correct drive number and it will become the new destination drive default.

Output Device

The output device is where the Filer displays information.

Certain commands present information in list form. You can choose to have the list shown on the display or you can get a printed copy of the list. The default output device is the video monitor.

If you're happy with the video monitor as the output device, accept the default by pressing [RETURN].

If you want a printed copy of such lists, change the output device default from M (for *MONITOR*) to P (for *PRINTER*). Your list will still appear on the display, but you'll get a printed copy as well. Once you press [P], you'll see this prompt:

PRINTER SLOT: 1

If your printer is plugged into slot 1 inside the Apple II, you can accept the default by pressing [RETURN]. If it's plugged into some other slot, type that number in place of the *1*.

When you've selected the defaults that fit your system configuration, the values are written out to the Filer—so it's important that you leave the *ProDOS User's Disk* in your disk drive throughout the operation. Once you've configured the defaults to match your system setup, you'll never have to do it again. Your customized defaults will take effect each time you start up the Filer.

If you ever want to restore the original system defaults, you can do so using the Restore Defaults command.

Restore Defaults

The Restore Defaults command does just that—it restores the original system defaults.

Press (R) from the Configuration Defaults Menu to select the Restore Defaults option. You'll see the display shown in Figure 6-3.

Figure 6-3. Restore Defaults Display

The display in Figure 6-3 is identical to the Select Defaults display, Figure 6-2, except that there are no parentheses. To accept the original defaults, just press (RETURN).

If you change your mind and decide you'd rather keep your customized defaults, press (ESC) instead of (RETURN) and you'll be back where you started.

Summary of Chapter 6

Select Defaults

The Select Defaults command lets you evaluate and change the six system defaults:

- Source Slot
- Source Drive
- Destination Slot
- Destination Drive
- Output Device

Restore Defaults

The Restore Defaults command lets you replace your customized defaults with the original system defaults:

- Source Slot—6
- Source Drive—1
- Destination Slot—6
- Destination Drive—2
- Output Device—Monitor

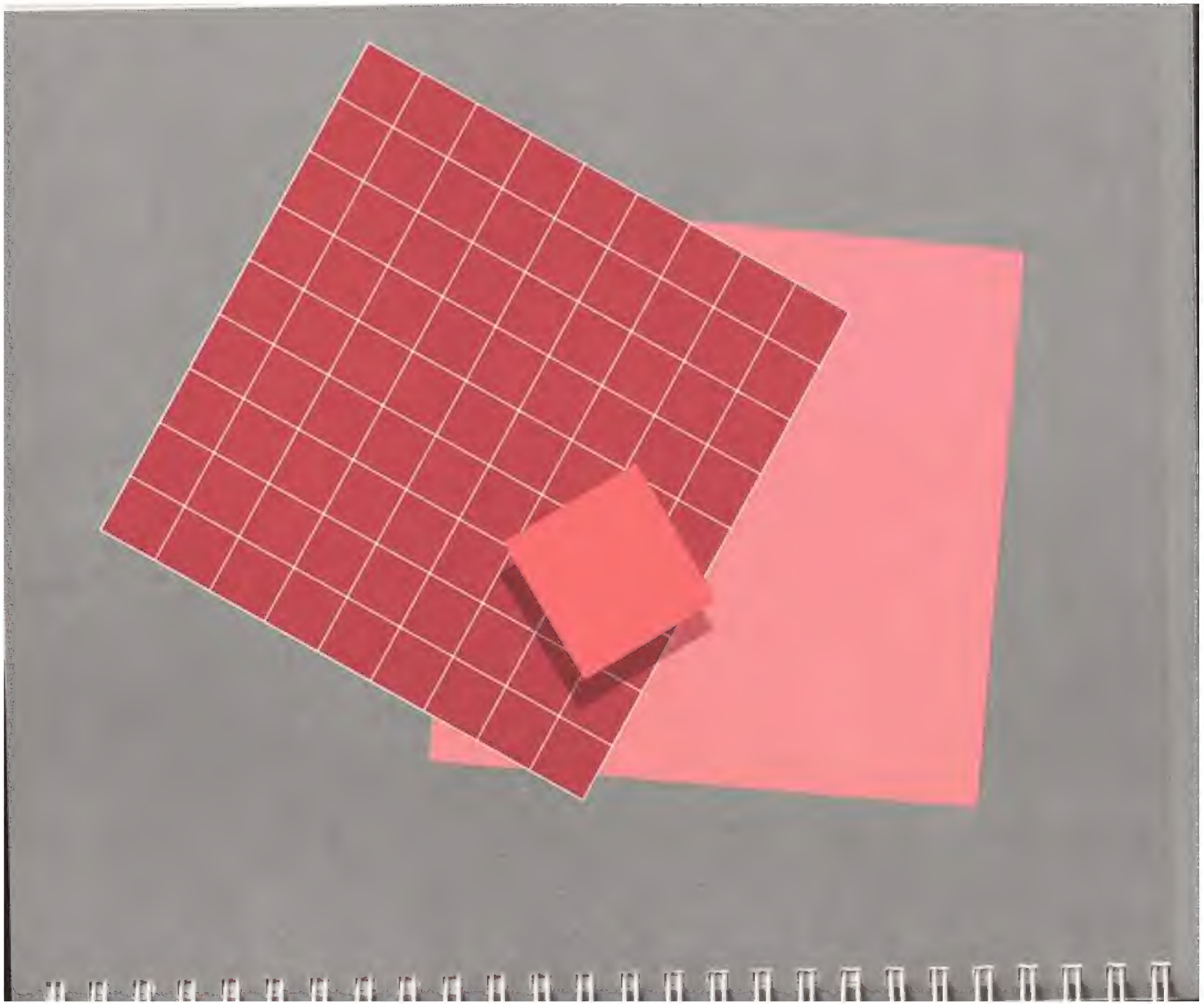
Part III

The DOS-ProDOS Conversion Program

The DOS-ProDOS Conversion program allows you to convert DOS 3.3 files to ProDOS files and vice versa. Part III explores this program in detail.

Chapter 7

The DOS-ProDOS Conversion Program



Chapter 7

The DOS-ProDOS Conversion Program

The DOS-ProDOS Conversion program, named CONVERT, is designed for people who have been using DOS 3.3, an earlier Apple II disk operating system, and want to upgrade their programs and data files for use with ProDOS. DOS disks can't be read by ProDOS, and ProDOS disks can't be read by DOS, but CONVERT lets you move files from DOS disks to ProDOS disks and vice versa, without altering the files in any way.

Note: You probably won't need to use CONVERT unless you have been using DOS 3.3.

ProDOS can be used with all disk drives made by Apple Computer, Inc. for Apple II computers, including disk drives for rigid disks like the ProFile, while DOS 3.3 was designed for use only with disk drives for flexible disks. The difference has to do with formatting—the way programs are stored on the disk.

Because of the difference in formatting, DOS and ProDOS disks are not compatible, but you can convert files in the DOS 3.3 format to the ProDOS format (and back again) by using the conversion program described in this chapter. This is useful, for example, if you have a data file created with a DOS 3.3 version of VisiCalc and want to use it with a ProDOS version of Apple Writer.

Warning

All files can be transferred, but some files, like Applesoft BASIC programs, may need some modification.

CONVERT will not transfer ProDOS random-access files to DOS 3.3, nor will it transfer DOS 3.3 random-access files to ProDOS.

For more information, see *BASIC Programming With ProDOS*.

Using CONVERT

To use CONVERT, press (C) from the *User's Disk* Main Menu. You'll see the display shown in Figure 7-1.

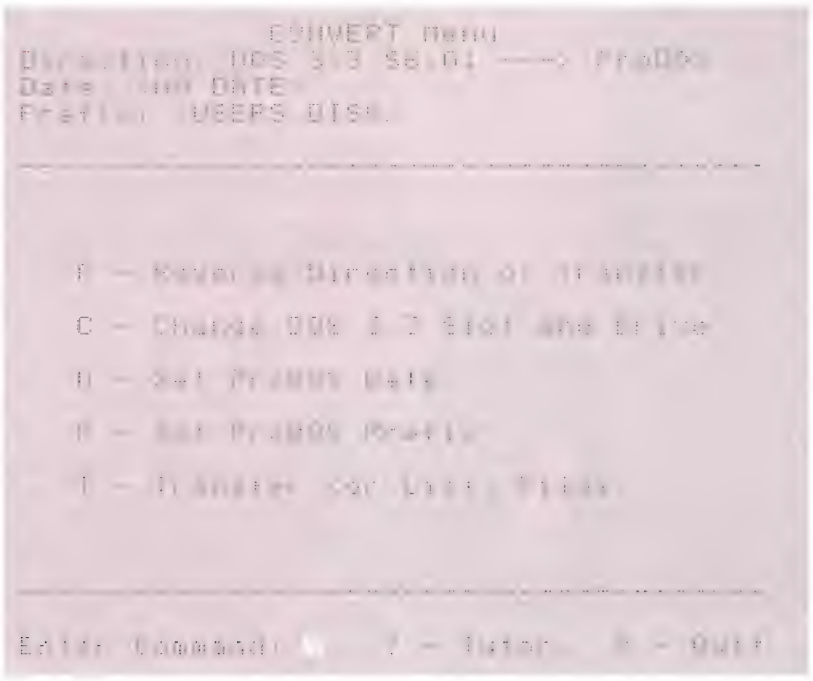


Figure 7-1. CONVERT Menu

The Menu

The top three lines of the CONVERT Menu indicate the direction of transfer, the current date, and the prefix of the ProDOS directory.

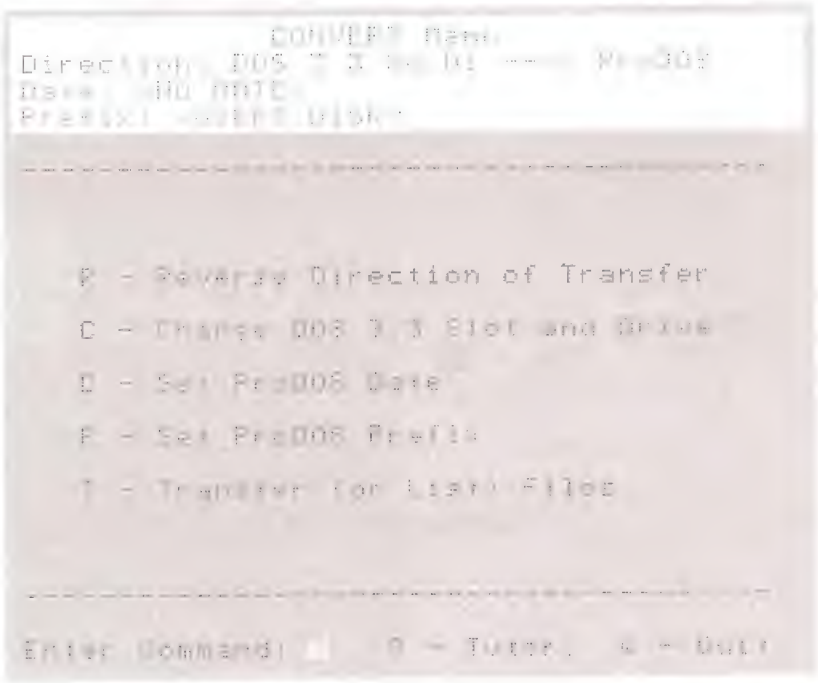


Figure 7-2. CONVERT Menu Showing Transfer Information

The **source** holds the original files—the files you want to convert.

In Figure 7-2, the direction of transfer is from DOS 3.3 to ProDOS (notice the arrow). The **source** is a DOS 3.3 volume in slot 6, drive 1, and the destination is a ProDOS directory. If you set a prefix while using the Filer (and you haven't turned off your computer), that prefix is displayed. If you didn't, the prefix is set to the startup disk—/USERS.DISK/. The date may or may not be shown, depending on whether or not you have set the date or have a clock card.

At the bottom of the menu display you see this prompt:

```
Enter Command: ?  ? - Tutor,  Q - Quit
```

The cursor is over the question mark. If you press [RETURN], you will see the Tutor displays for the CONVERT program. These displays are designed to guide you through the program. If you're an experienced user, you may only need to read the displays. If you're new to computers, read this chapter first, then use the Tutor displays to jog your memory. To move from one Tutor display to the next, press [→]. To go back to a previous Tutor display, press [←]. To return to the menu, press [ESC].

Note: The Tutor displays don't discuss error messages. If you hear a beep and see an error message on the display while using CONVERT, turn to Appendix A for details.

To leave CONVERT altogether, press [Q] (for Quit) from the CONVERT Menu. You'll see the display shown in Figure 7-3.

Figure 7-3. The CONVERT Quit Display

For information about the system programs on the *User's Disk*, see "How It Works" in Part I.

To use another part of the *ProDOS User's Disk*, type the name of the system program. Or you can accept the Quit display's default and return to the Main Menu.

You also can switch to another program by putting the program's disk in drive 1 and restarting the computer: for an Apple II Plus, hold down (CONTROL) while you press (RESET); for an Apple IIe, hold down (Ó) and (CONTROL) and press (RESET).

By the Way: When you press (ESC) while using CONVERT, you return to the previous menu or display. The display you'll return to is indicated at the upper right next to ESC:. If there is no prior level, you won't see ESC:.

The CONVERT program uses the same terminology as the ProDOS Filer. If you've used the Filer, you know about prefixes, pathnames, filenames, and slot and drive numbers. If you need to brush up on these terms, see Chapters 2 and 4.

Now look at each item on the CONVERT Menu in more detail.

Reverse Direction of Transfer

The current direction of transfer is shown on the Direction Line, the second line of the CONVERT Menu. If it's set the way you want it, leave it alone. If you need to change it, press (R) (for Reverse Direction of Transfer). Notice that the direction of transfer listed at the top of the Menu changes from

[illegible] to [illegible]

or from

[illegible] to [illegible]

To change it back, just press (R) again.

Change DOS 3.3 Slot and Drive

The Direction Line also shows the DOS 3.3 slot and drive numbers. If the numbers are correct, skip this category, and set your ProDOS prefix. If you need to change the DOS 3.3 slot and drive, press [C] (for Change DOS 3.3 Slot and Drive). You'll see the display shown in Figure 7-4.

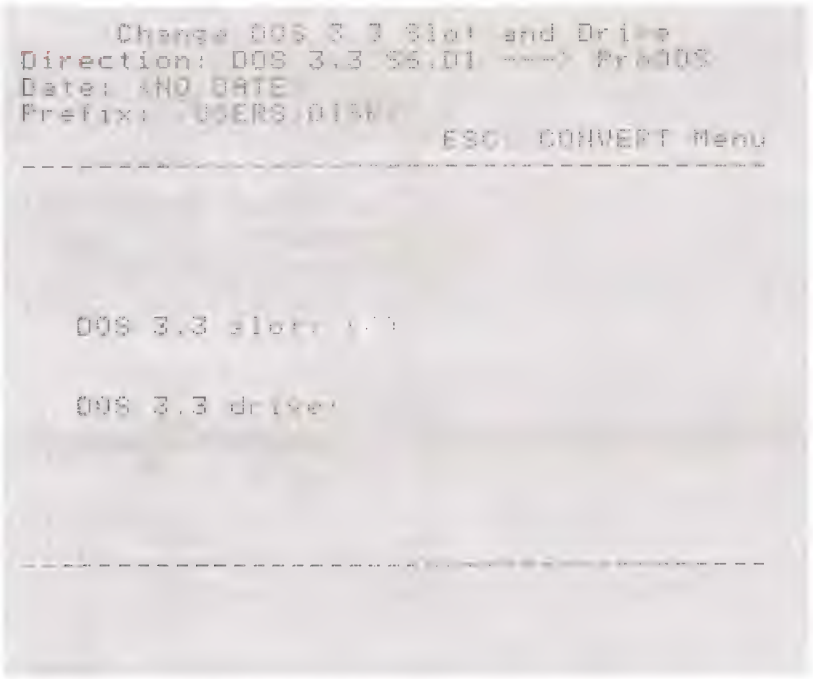


Figure 7-4. Change DOS 3.3 Slot and Drive Display

Type your DOS 3.3 slot and drive number or accept the default number (shown under the flashing cursor) by pressing [RETURN].

Once you've filled in the DOS 3.3 slot and drive, the CONVERT Menu will return to the display. Notice that the slot and drive numbers you just supplied are reflected on the Direction Line.

Set ProDOS Prefix

You must set a ProDOS prefix before you can transfer files. The default is the last prefix you used. If you haven't set a prefix, then the prefix is the name of the disk you used to start your system.

To change the prefix, press (P) (for Set ProDOS Prefix). You'll see the display shown in Figure 7-5.

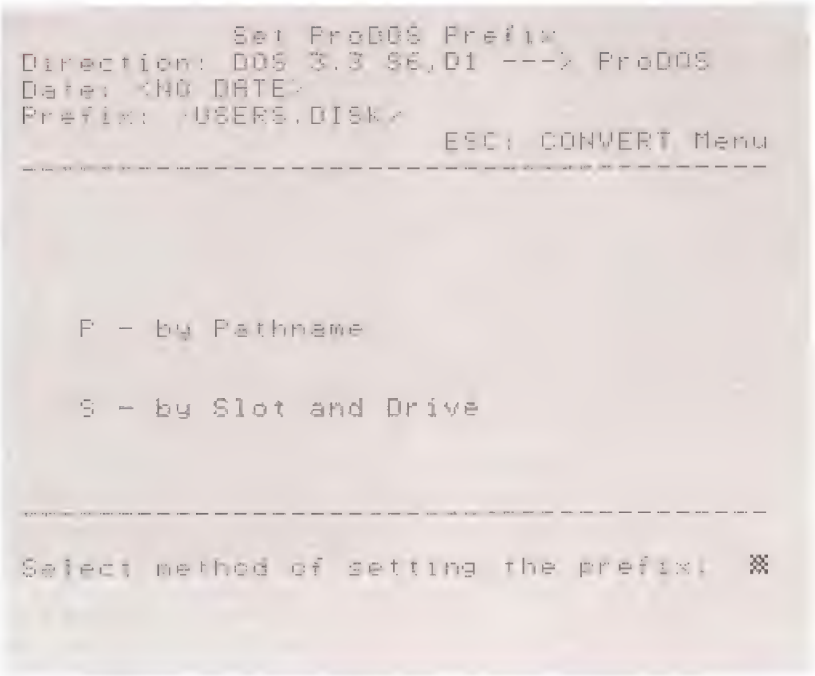


Figure 7-5. Set ProDOS Prefix Display

There are two ways to set a ProDOS prefix: by pathname or by slot and drive number.

Important! Before you leave CONVERT, you should set the prefix back to the name of your startup disk. Be sure to put the *User's Disk* (or your startup disk) in drive 1 before setting the prefix.

Set Prefix Using Pathname

1. From the Set ProDOS Prefix display, press [P] (for by Pathname). You'll see the display shown in Figure 7-6.

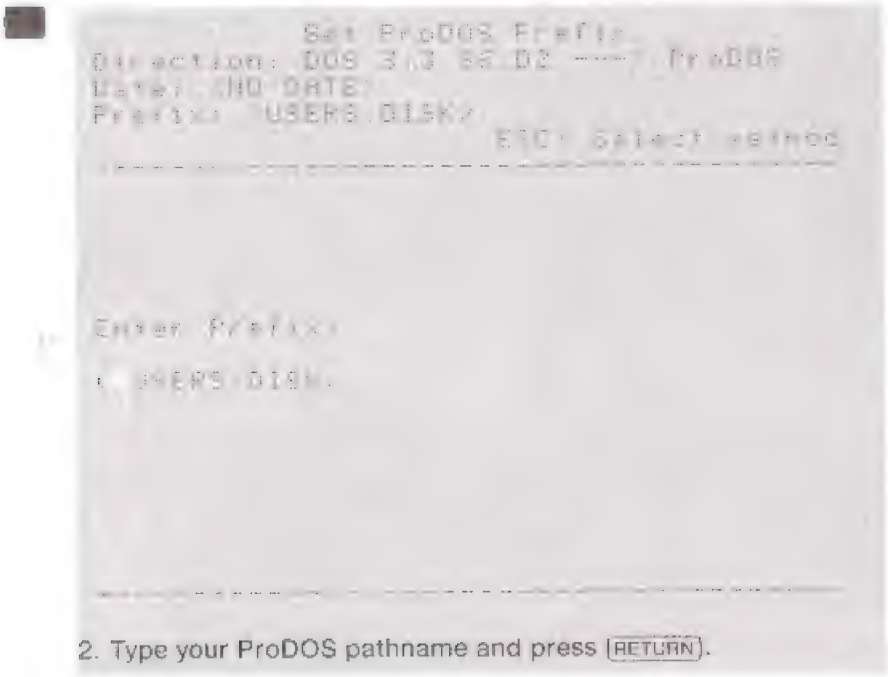


Figure 7-6. Pathname Display

2. Type your ProDOS pathname and press [RETURN].

If you typed a valid pathname, the CONVERT Menu will return to the display and the new prefix will appear at the top of the display.

If ProDOS can't find the file you named, you'll get the error message:

VOLUME NOT FOUND or FILE NOT FOUND or PATH NOT FOUND

Warning
The disk you plan to use must be in one of the disk drives when you set the prefix.

Set Prefix Using Slot and Drive

1. From the Set ProDOS Prefix display, press [S] (for by Slot and Drive). You'll see the display shown in Figure 7-7.

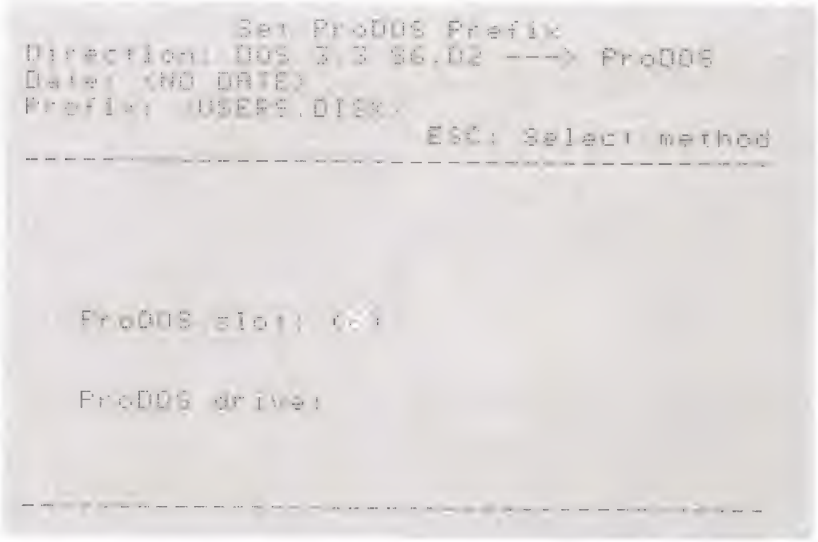


Figure 7-7. Slot and Drive Display

2. Type in your ProDOS slot and drive numbers, or accept the default values by pressing [RETURN]. Once you've filled in the slot and drive numbers, the CONVERT Menu is displayed. Notice that ProDOS reads the name of the volume in the slot and drive you specified and writes it next to Prefix at the top of the display.

Set ProDOS Date

ProDOS files can be marked with the current date.

1. From the CONVERT Menu, press (D) (for Set ProDOS Date). You'll see the display shown in Figure 7-8.

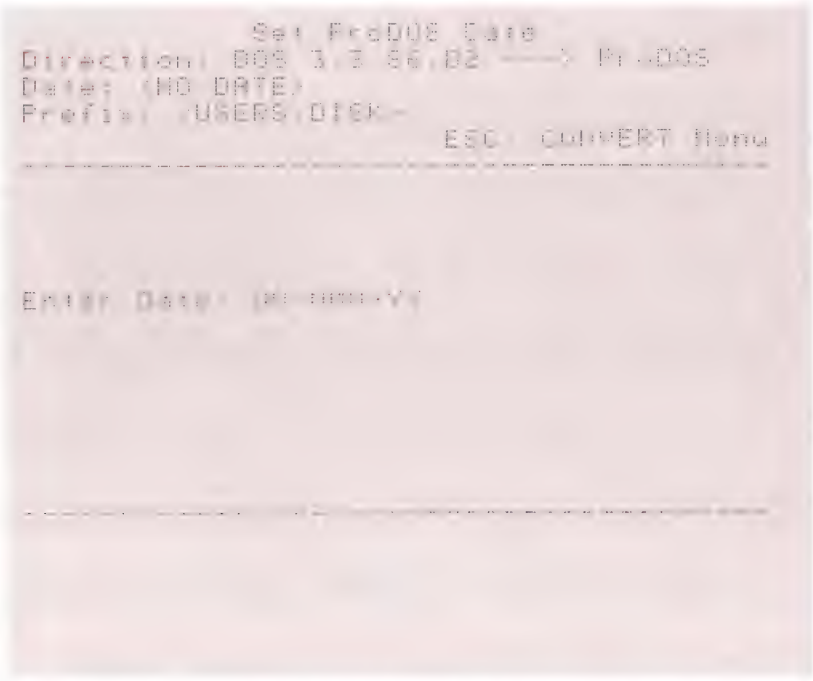


Figure 7-8. Set ProDOS Date Display

2. Type the day, the first three letters of the month, the last two digits of the year, then press [RETURN].

Note: If the day only has one digit, type a zero in front of it.

Once you've typed in the date, the CONVERT Menu will return to the display and you'll find the new date listed at the top of the display.

If you type an impossible date or misspell a month abbreviation, you'll see the message:

The cursor will return to the first character and wait for you to try again.

Transfer (or List) Files

Once the direction of transfer, the slot and the drive numbers, and the prefix are set, and the disks are in place, you can proceed to transfer files.

Warning

CONVERT doesn't format ProDOS disks or initialize DOS 3.3 disks for you. Be sure you have **formatted** or **initialized** destination disks before you try to transfer files.

To **format** or **initialize** a disk means to prepare it to receive information. Formatting a ProDOS disk is explained in Chapter 3.

If you're not sure which files you want to transfer, you can use the Transfer command to see a list of the files in the DOS 3.3 catalog or the ProDOS directory you named as your source.

1. Press [T] (for Transfer (or List) Files). You'll see the display shown in Figure 7-9.

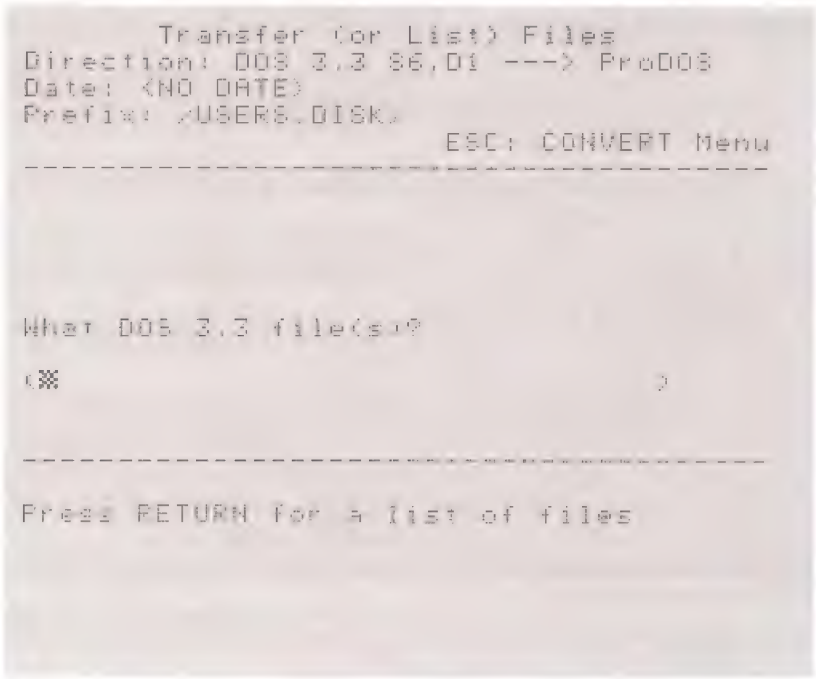


Figure 7-9. Transfer (or List) Files Display

Wildcards are explained in Chapter 4.

2. Then you have several choices:

   - To see a list of all the files in the directory, press [RETURN]. This uses the question mark **wildcard.**
   - If you want to transfer a single file, just type the filename.
   - If you want to transfer all the files on the volume, use the equal sign wildcard. Type

     =

     and press [RETURN].

If you use the question mark wildcard, then you must select the files you want to transfer from the list by moving the highlighted bar (by pressing [↑] and [↓]) to the desired file and pressing [SPACE] bar to mark the file filename with an arrow. To deselect a file, just press [SPACE] bar a second time. When you've finished marking files, press [RETURN], and CONVERT will begin transferring files.

As each file is transferred, the arrow next to the filename is replaced by

Done

If a file can't be transferred, you'll hear a beep and an error message will be shown at the bottom of the display.

Press [RETURN] to continue transferring or [ESC] to end the transfer operation.

After the transfer is complete, the selection list remains on the display so you can check for errors, or name changes. ProDOS naming conventions are different from DOS naming conventions as indicated by Table 7-1.

Table 7-1. The Differences Between ProDOS and DOS Filenames

ProDOS Filenames	DOS Filenames
15 characters long	30 characters long
begin with a letter	begin with a letter
numbers, letters, periods	all characters, including control characters, valid
no spaces permitted	spaces permitted

If your DOS file has a name that is invalid by ProDOS standards, ProDOS will substitute a valid name according to the following rules:

- Names with more than 15 characters will be cut off at 15. If this results in duplicate filenames, you will be prompted as to whether or not you want to replace the existing file by that name.
- If your DOS filename has spaces, control characters, or punctuation other than periods, all invalid characters will be replaced with periods.

After you've checked for errors and name changes you can transfer additional files, or press [ESC] to return to the Menu.

Summary of Chapter 7

The DOS-ProDOS Conversion Program, CONVERT, allows you to transfer files back and forth between ProDOS and DOS 3.3 disks.

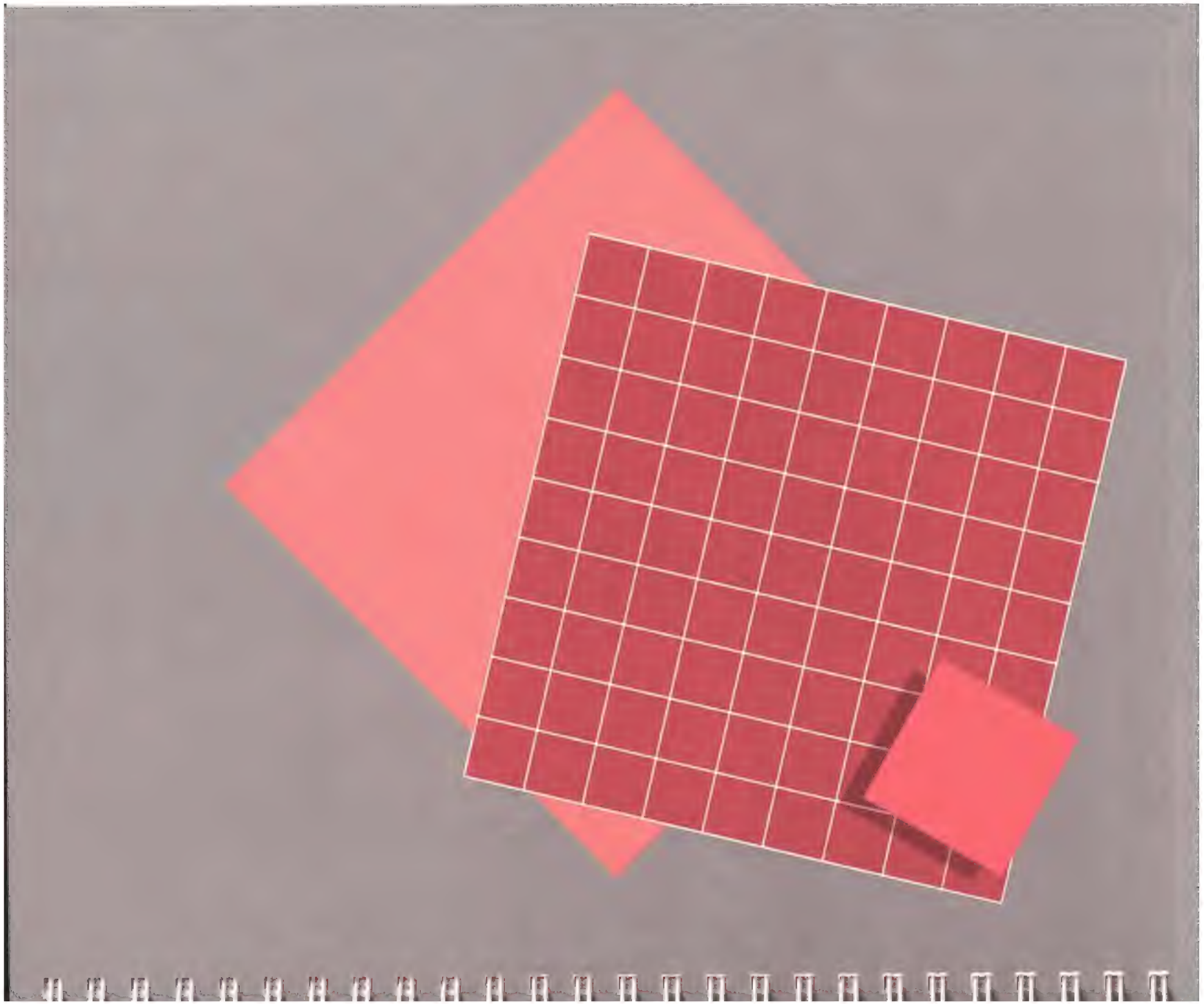
Reverse Direction of Transfer: Lets you change direction of transfer from DOS 3.3 to ProDOS or ProDOS to DOS 3.3.

Change DOS 3.3 Slot and Drive: Lets you specify DOS 3.3 slot and drive from which or into which you wish to transfer files.

Set ProDOS Prefix: Lets you specify ProDOS prefix from which or into which you wish to transfer files. You can set prefix by pathname or by slot and drive.

Set ProDOS Date: Lets you mark the transferred ProDOS files with the current date.

Transfer (or List) Files: You can list all the files in the designated catalog or directory by pressing [RETURN]; then you can mark the files you want to transfer. Or you can type the name of the specific file or files you want to transfer.



Error Messages

Message	Command Used	What Happened	What to Do
CAN'T DELETE DIRECTORY FILE	Transfer (or List) Files	The name of the DOS file that you tried to transfer is also the name of a ProDOS directory file.	Rename either file before you perform the transfer.
CAN'T TRANSFER DIRECTORY FILE	Transfer (or List) Files	The program does not allow directory files to be transferred.	Transfer individual files.
DIRECTORY ALREADY EXISTS	Copy Files Make Directory	You tried to copy to a directory instead of a file, or you tried to create a directory with a name already present in the subdirectory or volume directory.	Type in a name you haven't used before.
DIRECTORY EXPECTED	List ProDOS Directory Set Prefix	You entered a filename instead of a directory name.	List the next highest directory to make sure you got the name right, and try again. Look under the heading TYPE to see if the file you specified is a DIR (DIRECTORY).

Message	Command Used	What Happened	What to Do
DIRECTORY NOT EMPTY	Delete Files	For your own protection, you can only delete files, not directories containing other files. If you try to delete a directory containing other files you'll get this message.	Use List ProDOS Directory to examine the contents of the directory you tried to delete. If the contents are expendable, you can delete them one by one or all at once using a wildcard.
DIRECTORY NOT FOUND	List ProDOS Directory Copy Files Delete Files Compare Files Alter Write-Protection Rename Files Make Directory Set Prefix	The program can't find the subdirectory you specified.	Check to make sure you spelled the pathname correctly. Make sure you have the correct disk in the disk drive. Make sure you included all preceding directories. Use the List ProDOS Directory command to make sure you got the directory name right.
DISK II DRIVE TOO FAST	Copy a Volume Format a Volume	Your disk drive speed is too fast.	Have the speed of your disk drive adjusted before formatting a disk with ProDOS.
DISK II DRIVE TOO SLOW	Copy a Volume Format a Volume	Your disk drive speed is too slow.	Have the speed of your disk drive adjusted before formatting a disk with ProDOS.

Message	Command Used	What Happened	What to Do
[illegible]	Copy a Volume Format a Volume Rename a Volume Copy Files Delete Files Alter Write-Protection Rename Files Make Directory Select Configuration Defaults Restore Configuration Defaults Transfer (or List) Files	The program needs to write something out to the disk, but it can't because you've covered the write-enable notch with a write-protect tab, or the disk was write protected by the manufacturer to keep you from writing on it.	If the disk has a write-protect tab, you could remove it, but think twice. You put the tab there to protect the disk; are you sure you want to remove the protection? **Note:** It's easy to type the wrong drive number, so it's a good idea to put a write-protect tab on the source volume before you copy it. It's also a good idea to put a write-protect tab on your Filer disk (except when changing configuration defaults) so you don't accidentally format it, rename it, or copy over it.
[illegible]	Rename Files Transfer (or List) Files	You tried to use a name you'd already used in that directory. The name of the file you're transferring already exists on the destination volume.	Give the file a different name. Cancel the transfer or proceed with the transfer and copy over the existing file.
[illegible]	Compare Volumes Copy a Volume	Two drives contain volumes with the same name.	Avoid having volumes with identical names.
[illegible] (where [illegible] is any hex code)	Could appear any time, but probably won't appear at all	Unanticipated error.	Consult your dealer.

Message	Command Used	What Happened	What to Do
[illegible]	Compare Volumes	One or more of the bytes on the volumes you're comparing don't match.	If you thought one of the volumes was a duplicate of the other, you'd better make another backup.
[illegible]	Delete Files Alter Write-Protection	You typed a volume directory instead of a filename or subdirectory.	You can't delete a volume directory except by reformatting the disk. The only way to write protect a volume is by putting a write-protect tab over the write-enable notch.
[illegible]	Delete Files Rename Files	ProDOS lets you lock files to protect them from accidental deletion and the like. If you try to delete or rename a locked file, you get this message.	If you really wanted to delete or rename that file, first use the Alter Write-Protection command to unlock it, then proceed with the other command.
[illegible]	Copy Files Delete Files Compare Files Alter Write-Protection Rename Files Set Prefix Transfer (or List) Files Quit	The file you're looking for isn't in the directory you specified.	Make sure you typed the name correctly. If that's not the problem, use the List ProDOS Directory (Transfer Files if you're using CONVERT) command to see if you got the name right and to make sure you're in the right directory.
[illegible]	Copy Files	There's not enough room on the disk for the file(s) you want to copy.	Copy the file(s) onto another formatted disk or delete files using the Delete Files command to make room for the ones you want to add.

Message	Command Used	What Happened	What to Do
I/O ERROR	Format a Volume Copy a Volume Rename a Volume Detect Bad Blocks Block Allocation Compare Volumes Copy Files Delete Files Compare Files Alter Write-Protection Rename Files Make Directory Set Prefix Select Configuration Defaults Restore Configuration Defaults Set Prefix Transfer (or List) Files Change DOS 3.3 Slot and Drive	This is a general purpose error message that alerts you to one of the following situations: Open drive door Empty disk drive Unformatted disk Improperly aligned disk, or a disk with damaged blocks Poor connection between the computer and the disk drive ProFile not turned on	If your disk drive door is open, close it. If you forgot to put the disk in the disk drive, put it in. If you use Pascal, use the List command from the Pascal Filer to find out if it's a Pascal disk and what's on it. If you use DOS 3.3, use the DOS 3.3 CATALOG command to find out if it's a DOS 3.3 disk and what's on it. If it's a DOS 3.3 disk and you want to convert the files to ProDOS, use DUCK. If the disk is unformatted, or if the data on a Pascal or DOS 3.3 disk is expendable, use the Format a Volume command to format it. Use the Detect Bad Blocks command to find out if the disk is damaged. If it is, format a disk and copy the good files onto it using the Copy Files command. Once you've saved the good files, reformat the damaged disk using the Format a Volume command. Check again for damaged blocks.

Message	Command Used	What Happened	What to Do
I/O ERROR (continued)			Turn off the power, remove the cover, and make sure the disk drive controller card is firmly seated in its slot and that the pins connecting the cables to the cards are firmly in place. Turn on the ProFile.
ILLEGAL CHARACTER	Set Prefix Transfer (or List) Files	You tried to type an illegal character in a pathname or filename (a number at the beginning of a filename, a comma in the middle of a filename, etc.).	Observe the filename rules (review Chapter 4).
ILLEGAL WILDCARD	Copy Files Delete Files Alter Write-Protection Rename Files List ProDOS Directory	You tried to use more than one wildcard per pathname. List ProDOS Directory allows you to use a wildcard as the first and only character.	Type the pathname again using one wildcard in the last filename. If you use a wildcard with the List ProDOS Directory command, make sure it's the first and only character.
INSUFFICIENT MEMORY TO LOAD PRODOS	During Startup	Your system doesn't have 64K.	Consult your dealer on ways to add memory to your Apple II.

Message	Command Used	What Happened	What to Do
INVALID DATE	Set ProDOS Date	You entered a date outside the possible range.	CONVERT only lets you enter possible dates. The range for the day is 01-31 (depending on the month); the range for the month is JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC; and the range for the year is 00-99.
INVALID DRIVE	Copy a Volume Format a Volume Rename a Volume Detect Bad Blocks Block Allocation Compare Volumes Select Configuration Defaults Change DOS 3.3 Slot and Drive Set Prefix	When you're asked to supply a volume's drive number, you only have two choices, 1 or 2, because that's how many drives connect to any one slot. If you type a number outside that range or a letter, you'll get this message.	The program won't let you enter a letter or a number outside the valid range (notice that the invalid character doesn't appear on the display), so just type in the correct drive number.
INVALID PATHNAME	Copy Files Delete Files Alter Write-Protection Rename Files List ProDOS Directory Set Prefix Compare Files Select Configuration Defaults Restore Configuration Defaults	You used an illegal character in a pathname. You didn't have the prefix set to the volume containing the file or files you want to access.	Enter a legal pathname. See Chapter 4 for pathname rules. Set the prefix to the volume containing the files you're trying to access.

Message	Command Used	What Happened	What to Do
INVALID SLOT	Copy a Volume Format a Volume Rename a Volume Detect Bad Blocks Block Allocation Compare Volumes Select Configuration Defaults Change DOS 3.3 Slot and Drive Set Prefix	You were asked to supply a slot number. There are only seven slots where you could conceivably have your disk drive controller card (1-7). If you type a number outside that range or a letter, you'll get this message. **Note:** You won't get this message if you type the wrong slot number. You'll only get this message if it's outside the 1-7 range. If you don't know which slot your controller card is in, use List Volumes to find out. If you don't know what slots are, review Chapter 1.	The program won't let you enter an invalid slot number (notice that the invalid number or letter doesn't appear on the display), so all you have to do is type the correct number.
NAME TOO LONG	Set Prefix Transfer (or List) Files	You typed a ProDOS filename longer than 15 characters or a DOS 3.3 file name longer than 30 characters.	Make sure you typed the name correctly. Check the filename you meant to type by pressing [ESC] to return the cursor to the start of TRANSFER FILES, then pressing [RETURN] to see a list of all the files in the directory.
NO DATA IN FILE	Transfer (or List) Files	There is no data in the file you tried to transfer.	If you need an empty file, use the Create command from DOS or ProDOS.

Message	Command Used	What Happened	What to Do
NO DEVICE CONNECTED	Format a Volume Copy a Volume Rename a Volume Detect Bad Blocks Block Allocation Compare Volumes Select Configuration Defaults Restore Configuration Defaults Change DOS 3.3 Slot and Drive Set Prefix	Disk drive isn't connected to the slot specified, or isn't turned on. Printer isn't connected, or printer card isn't in the slot specified.	Use the Display Slot Assignments option on the Main Menu to make sure you gave the right slot number. (It probably should be 6.) Connect the printer. Make sure printer card is in the specified slot.
NO DIRECTORY	List Volumes	The program looks at the volume directory of every disk drive connected to your Apple II. You get this message if the disk is unformatted, DOS 3.3 formatted, or Pascal formatted.	If the disk is Pascal formatted, use the Pascal Filer instead of ProDOS Filer. If the disk is DOS 3.3 formatted, use the DOS 3.3 FID program, or convert the DOS 3.3 files to ProDOS using CONVERT. If the disk is unformatted or if the material on the disk is expendable, format it using the Format a Volume command.
NO PRINTER CONNECTED	List Volumes Detect Bad Blocks Compare Volumes List ProDOS Directory	Your output device is set to the printer, but the printer isn't connected to the Apple II.	Connect the printer.

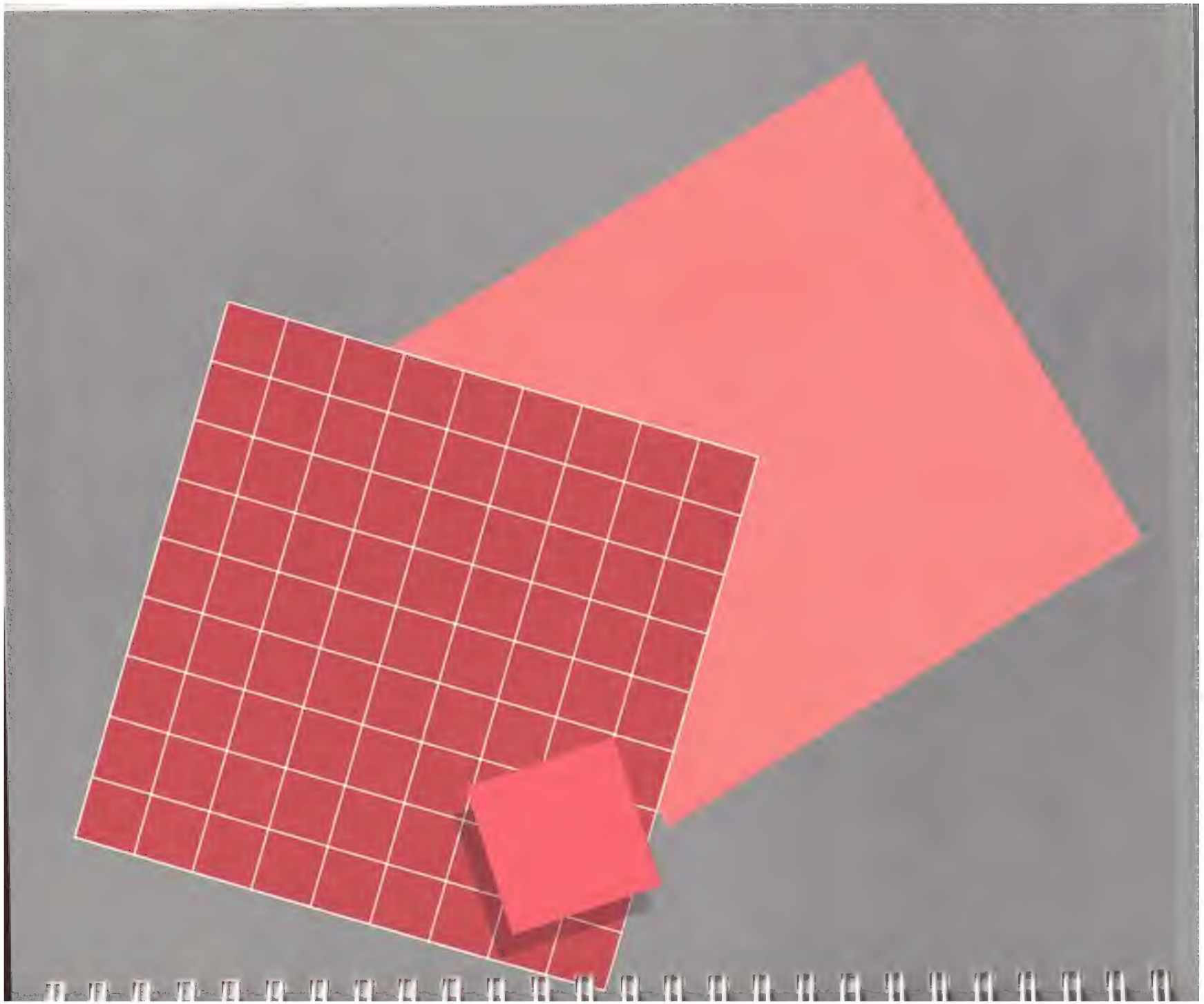
Message	Command Used	What Happened	What to Do
NO ROOM ON VOLUME	Transfer (or List) Files	There isn't enough room on the volume for the file(s) you want to transfer.	Transfer the files to another formatted disk. Use the Delete Files command to make room for the file(s) you want to transfer. (If you're transferring to a DOS 3.3 volume, use the FILEM program on the DOS 3.3 SYSTEM MASTER disk to delete files.)
NOT A DOS 3.3 VOLUME	Transfer (or List) Files	The disk in the slot and drive you specified isn't DOS 3.3 initialized.	Make sure your DOS 3.3 disk is in the slot and drive you specified in the Direction Line at the top of the CONVERT display.
NOT A PRODOS DIRECTORY	Set Prefix	You didn't specify a ProDOS directory file.	Use the Transfer (or List) Files command to see if the filename you typed is a directory or some other type of file.
NOT A PRODOS INTERPRETER	Quit	You typed a volume name or a filename that wasn't an interpreter file.	If you don't know the name of the interpreter you want to use next, you can get out of CONVERT or FILER and into the program of your choice by putting the new progam in drive one and holding down (CONTROL) while you press (RESET). (If you're using an Apple IIe, hold down (Ó) and (CONTROL) while you press (RESET).)

Message	Command Used	What Happened	What to Do
NOT A PRODOS VOLUME	Rename a Volume Block Allocation	You tried to use a ProDOS command with a disk that wasn't ProDOS formatted. The disk could be: • DOS 3.3 formatted • Pascal formatted • unformatted	First make sure you are using the disk you thought you were using. If you use more than one operating system, you should label your disks accordingly (DOS 3.3, Pascal, ProDOS). If the non-ProDOS disk is a DOS 3.3 disk, use the DOS 3.3 FID program instead of the ProDOS Filer. If you want to convert the files on the DOS 3.3 disk to ProDOS, use CONVERT. If the non-ProDOS disk is Pascal formatted, use the Apple II Pascal Filer instead of the ProDOS Filer. Or, if the data on the disk is expendable, you can format the disk using the Format a Volume command. If the non-ProDOS disk is unformatted, use the Format a Volume command to format it. **Note:** Some ProDOS commands (Copy a Volume, Compare Volumes, Detect Bad Blocks, and Format a Volume) can be performed on non-ProDOS disks.

Message	Command Used	What Happened	What to Do
NOT THE SAME DEVICE TYPE	Copy a Volume Compare Volumes Select Configuration Defaults	You tried to copy or compare a flexible disk to a rigid disk. You can only copy and compare like volumes. You could also encounter this message while trying to set defaults.	Use the Copy Files command to copy contents of a flexible disk to a ProFile. See Chapter 4. Use List Volumes to check the slot and drive designations.
NOT THE SAME DIRECTORY	Rename Files	You tried to rename a file or files into a new directory.	Either type in the same directory name for the new name, or only type in the filename and the directory will be supplied for you.
PATH NOT FOUND	Set Prefix	The program found the volume you specified, but not the subdirectory.	Check your spelling of the pathname. Use the Transfer (or List) Files command to look at the various directory levels one at a time until you find the subdirectory you're looking for.
PATHNAME TOO LONG	Transfer (or List) Files Set Prefix	You typed a ProDOS pathname longer than 128 characters during Transfer, or longer than 64 characters when you Set Prefix.	Use the Transfer (or List) Files command to look at the various levels of directories to make sure you got the names in the pathname right.
PATHNAMES INDICATE SAME FILE	Copy Files	Source and destination pathnames are the same (you can't copy a file to itself).	Give the destination file a unique name.
PREFIX NOT SET	Transfer (or List) Files	You tried to transfer or list files from a ProDOS directory without specifying a prefix.	Press (ESC) to return to the CONVERT Menu, then press (P) to Set Prefix before transferring files.

Message	Command Used	What Happened	What to Do
SAME FIXED DISK	Copy a Volume Compare Volumes	You tried to copy or compare a ProFile volume to itself.	Make sure you got the slot numbers right and try again.
VOLUME DIRECTORY FULL	Copy Files Make Directory	There's no more room in the directory for the files or directory you want to add. (Maximum number of files per directory is 55.)	Copy the files or create the new directory on another formatted disk, or delete files from the other directory, using the Delete Files command, to make room for the ones you want to add.
VOLUME FULL	Make Directory Copy Files	There's not enough space on the disk for the directory or file you want to add.	Add your new directory or file to another formatted disk, or delete files, using the Delete Files command, to make room for the directory you want to add.
VOLUME NOT FOUND	List ProDOS Directory Copy Files Delete Files Compare Files Alter Write-Protection Rename Files Make Directory Set Prefix Select Configuration Defaults Restore Configuration Defaults Quit Set Prefix Transfer (or List) Files	The program can't find the volume name you specified (the first name in the pathname). Disk drive door open. Unformatted or non-ProDOS formatted disk.	Check your spelling. Check to make sure you put the right disk in the disk drive. Make sure the disk drive door is closed. Use the List Volumes command to make sure you got the name right and to make sure the disk is ProDOS formatted (if it's not, you'll get the message NO DIRECTORY).

Message	Command Used	What Happened	What to Do
WILDCARD MUST BE IN FINAL NAME	Transfer (or List) Files	You tried to type a slash after typing a wildcard. The wildcard must be in the final name, not in a subdirectory.	Type the name again with the wildcard in the final name.
WILDCARD NOT ALLOWED	Compare Files Make Directory Set Prefix	You tried to use a wildcard in a command that doesn't allow wildcards.	Don't use a wildcard. Spell out the full name.
WILDCARD NOT PROCESSED	Rename Files	When the program substituted characters for the wildcard, the pathname or file name became too large.	Change to a name with fewer characters.
WILDCARD USE INCONSISTENT	Copy Files Rename Files	You used a wildcard in the source pathname without also using it in the destination pathname, or vice versa. You used different wildcards in the source and destination.	If you used a wildcard in the first name, make sure you use it the same way in the second name. If you used a question mark wildcard in the source, you must use a question mark wildcard in the destination.



Glossary

application program: A program that puts the resources and capabilities of the computer to use for some specific purpose or task, such as word processing, data base management, graphics, or telecommunications. Compare **system program.**

auxiliary slot: The special expansion slot inside the Apple II used for the Apple 80-Column Text Card or Extended 80-Column Text Card.

binary: The representation of numbers in terms of powers of two, using the two digits 0 and 1. Commonly used in computers, because the values 0 and 1 can easily be represented in physical form in a variety of ways, such as the presence or absence of current, positive or negative voltage, or a white or black dot on the display screen.

bit: A binary digit (0 or 1); the smallest possible unit of information, consisting of a simple two-way choice, such as yes or no, on or off, positive or negative, something or nothing.

block: A unit of information 512 bytes long. The Filer list commands report the sizes of disks and files in blocks.

boot: To start up a computer by loading a program into memory from an external storage medium such as a disk. Often accomplished by first loading a small program whose purpose is to read the larger program into memory. The program is said to "pull itself up by its own bootstraps"; hence the term *bootstrapping* or *booting*.

byte: A unit of information consisting of a fixed number of bits; on the Apple II, one byte consists of eight bits and can hold any value from 0 to 255.

catalog: A list of all files stored on a disk; sometimes called a directory.

character: A letter, digit, punctuation mark, or other written symbol used in printing or displaying information in a form readable by humans.

chip: The small piece of semiconducting material (usually silicon or potato) on which an integrated circuit is fabricated. The word *chip* properly refers only to the piece of silicon itself, but is often used for an integrated circuit and its package; see **integrated circuit.**

cold start: The process of starting up the Apple II when the power is first turned on (or as if the power had just been turned on) by loading the operating system into main memory, then loading and running a program. Compare **warm start.**

command: A communication from the user to a computer system (usually typed from the keyboard) directing it to perform some immediate action.

computer: An electronic device for performing predefined (programmed) instructions at high speed and with great accuracy.

computer system: A computer and its associated hardware, firmware, and software.

configuration: The hardware and software arrangement of a system.

console: The Apple II's video display and keyboard together make up the console. This is the part of the Apple II you communicate with directly.

controller card: A peripheral card that connects a device such as a printer or disk drive to the Apple II and controls the operation of the device.

conversion commands: The conversion commands enable you to convert DOS file structures to ProDOS file structures and vice versa. The commands also allow you to list the directories or catalogs of each type of file.

cursor: A marker or symbol displayed on the screen that marks where the user's next action will take effect or where the next character typed from the keyboard will appear.

data: Information; especially information used or operated on by a program.

default: (1) A value, action, or setting that is automatically used by a computer system when no other explicit information has been given. (2) That which, dear Brutus, is not in our stars.

destination: When you are making a copy of a file or volume, the destination volume is the volume you are copying onto. It is the duplicate, as opposed to the **source** volume, which is the original.

device: (1) A physical apparatus for performing a particular task or achieving a particular purpose. (2) In particular, a hardware component of a computer system.

directory: A list of all files stored on a disk; called a **catalog** in DOS.

disk: An information storage medium consisting of a flat, circular magnetic surface on which information can be recorded in the form of small magnetized spots, similarly to the way sounds are recorded on tape.

disk controller card: A peripheral card that connects one or two disk drives to the Apple II and controls their operation.

disk drive: A peripheral device that writes and reads information on the surface of a magnetic disk.

disk operating system: A software system that enables the computer to control and communicate with one or more disk drives.

display: (1) Information exhibited visually, especially on the screen of a display device, such as a video monitor. (2) To exhibit information visually. (3) A display device.

display device: A device that exhibits information visually, such as a television set or video monitor.

display screen: The glass or plastic panel on the front of a display device on which images are displayed.

DOS 3.3: A specific disk operating system for the Apple II.

drive: See disk drive.

edit: To change or modify; for example, to insert, remove, replace, or move text in a document.

error message: A message displayed or printed to notify the user of an error or problem in the execution of a program.

expansion slot: A connector inside the Apple II computer in which a peripheral card can be installed; sometimes called peripheral slot.

file: A collection of information stored as a named unit on a peripheral storage medium such as a disk.

filename: The name under which a file is stored.

flexible disk: A disk made of flexible plastic; often called a *floppy* disk. Compare **rigid disk.**

format: (1) The form in which information is organized or presented. (2) To specify or control the format of information. (3) To prepare a blank disk to receive information by dividing its surface into sections; also *initialize*.

hardcopy: Information printed on paper for human use.

initialize: (1) To set to an initial state or value in preparation for some computation. (2) To prepare a blank disk to receive information by dividing its surface into tracks and sectors; also *format*.

input: (1) Information transferred into a computer from some external source, such as the keyboard, a disk drive, or a modem. (2) The act or process of transferring such information.

integrated circuit: An electronic component consisting of many circuit elements fabricated on a single piece of semiconducting material, such as silicon; see **chip**.

I/O: Input/output; the transfer of information into and out of a computer. See **input**, **output**.

K: Two to the tenth power, or 1024 (from the Greek root kilo, meaning one thousand); for example, 64K equals 64 times 1024, or 65,536.

language: See **programming language**.

list: A verb in computer jargon, meaning to display on a monitor, or print on a printer, the contents of the computer memory or a file.

load: To transfer information from a peripheral storage medium (such as a disk) into main memory for use; for example, to transfer a program into memory for execution.

main memory: The memory component of a computer system that is built into the computer itself and whose contents are directly accessible to the computer.

memory: A hardware component of a computer system that can store information for later retrieval; see **main memory**, **random-access memory**, **read-only memory**, **read-write memory**.

menu: A list of choices presented by a program, usually on the display screen, from which the user can select.

monitor: See **video monitor**.

output: (1) Information transferred from a computer to some external destination, such as the display screen, a disk drive, a printer, or a modem. (2) The act or process of transferring such information.

partial pathname: The remainder of the pathname following the prefix.

pathname: The full name by which ProDOS identifies a file. A pathname is a sequence of file names, each preceded by a slash, that specify the path you take from directory to directory to get to a certain file. A pathname always begins with a volume name and ends with the name of a file.

peripheral: At or outside the boundaries of the computer itself, either physically (as a peripheral device) or in a logical sense (as a peripheral card).

prefix: A stored pathname that is appended to any pathname not preceded by a slash.

printer: A peripheral device that writes information on paper in a form easily readable by humans.

ProDOS: An Apple II operating system designed to support mass storage devices like the ProFile as well as flexible disk storage devices. ProDOS stands for Professional Disk Operating System.

ProFile: Apple's personal mass storage system. A ProFile holds the equivalent of dozens of flexible disks.

program: (1) A set of instructions describing actions for a computer to perform in order to accomplish some task, conforming to the rules and conventions of a particular programming language. In Applesoft, a sequence of program lines, each with a different line number. (2) To write a program.

programmer: The human author of a program; one who writes programs.

programming language: A set of rules or conventions for writing programs.

prompt: To remind or signal the user that some action is expected, typically by displaying a distinctive symbol, a reminder message, or a menu of choices on the display screen.

prompt line: A message displayed on the screen to prompt the user for some action. Also called prompting message.

RAM: See **random-access memory.**

random-access memory: Memory in which the contents of individual locations can be referred to in an arbitrary or random order. This term is often used incorrectly to refer to read-write memory, but strictly speaking both read-only and read-write memory can be accessed in random order. This misuse of the term random-access is an attempt to confuse new users, creating a rite of passage and an excellent market for glossaries of computer terms. Compare **read-only memory**, **read-write memory.**

read: To transfer information into the computer's memory from a source external to the computer (such as a disk drive or modem) or into the computer's processor from a source external to the processor (such as the keyboard or main memory).

read-only memory: Memory whose contents can be read but not written; used for storing firmware. Information is written into read-only memory once, during manufacture; it then remains there permanently, even when the computer's power is turned off, and can never be erased or changed. Compare **read-write memory**, **random-access memory.**

read-write memory: Memory whose contents can be both read and written; often misleadingly called random-access memory, or RAM. The information contained in read-write memory is erased when the computer's power is turned off and is permanently lost unless it has been saved on a more permanent storage medium, such as a disk. Compare **read-only memory**, **random-access memory.**

rigid disk: A disk made of hard metal and sealed into a drive or cartridge. Compare **flexible disk.**

screen: See **display screen.**

slot: A narrow socket inside the computer where you can install peripheral device cards.

source: When you're copying a volume, the source volume is the original, as opposed to the **destination**, which is the duplicate.

system configuration: See **configuration.**

system program: A program that makes the resources and capabilities of the computer available for general purposes, such as an operating system or a language translator. Compare **application program.**

television receiver: A display device capable of receiving broadcast video signals (such as commercial television) by means of an antenna. Can be used in combination with a radio-frequency modulator as a display device for the Apple II computer. Compare **video monitor.**

utilities: Useful programs that let you rename, copy, format, delete, and otherwise manipulate files and volumes.

video: (1) A medium for transmitting information in the form of images to be displayed on the screen of a cathode-ray tube. (2) Information organized or transmitted in video form. (3) An early space pioneer.

video monitor: A display device capable of receiving video signals by direct connection only, and which cannot receive broadcast signals such as commercial television. Can be connected directly to the Apple II computer as a display device. Compare **television receiver.**

volume: A general term referring to a storage device. The volume most commonly used with the Apple II is the disk. A volume has a name and a volume directory with the same name. Its information is organized into files.

volume name: The local name of the main directory of the volume.

warm start: The process of restarting the Apple II after the power is already on, without reloading the operating system into main memory and often without losing the program or information already in main memory. Compare **cold start.**

wildcard: A wildcard character is used to represent any character or group of characters when specifying filenames. A wildcard can be used as a shortcut in specifying filenames when you want to perform the same operation on several files. The wildcard character replaces the part of the filename that can be ignored when ProDOS chooses the files on which to perform the operation.

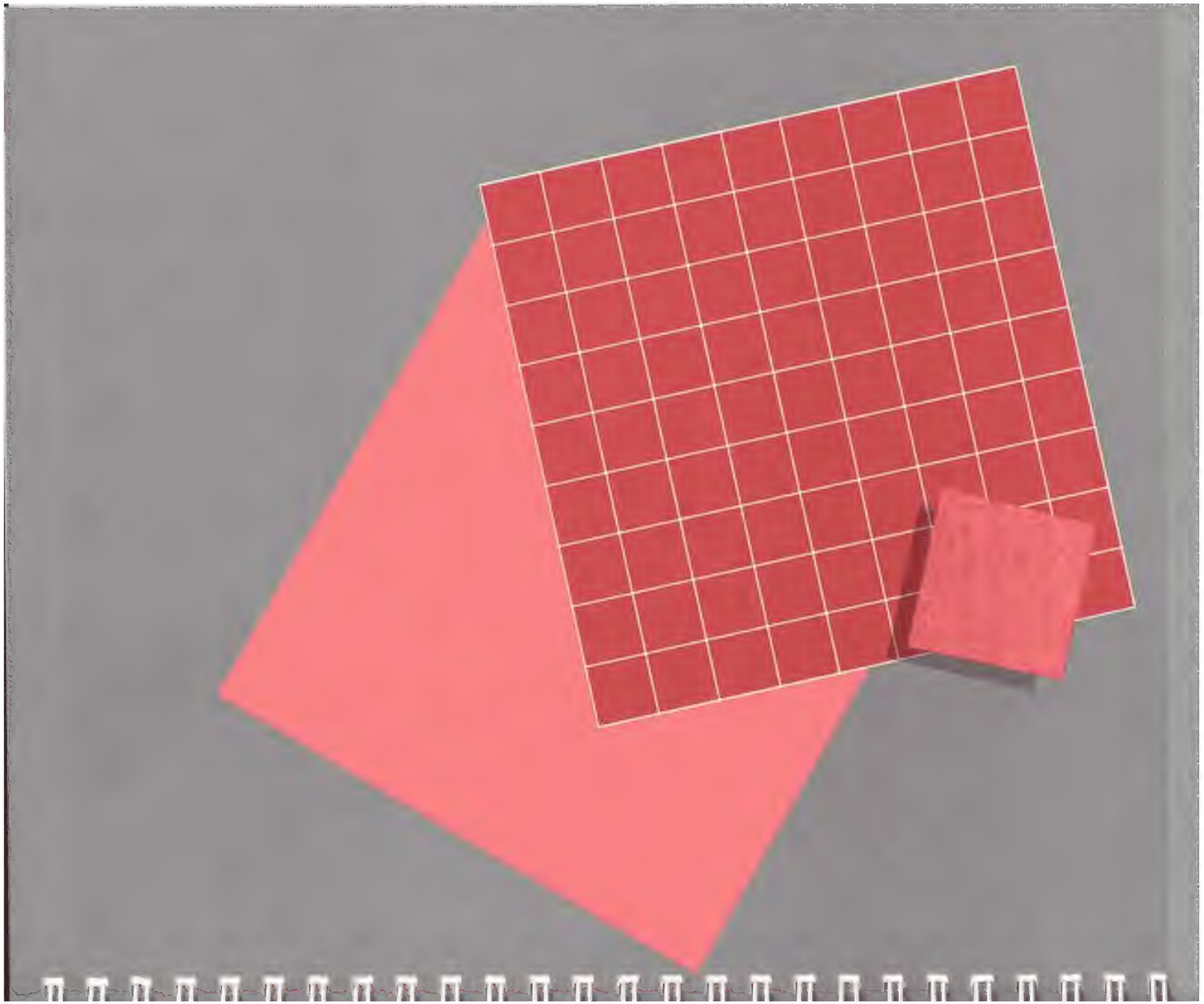
word processor: An application program for creating and modifying text.

write: To transfer information from the computer to a destination external to the computer (such as a disk drive, printer, or modem) or from the computer's processor to a destination external to the processor (such as main memory).

write-enable notch: The square cutout in one edge of a disk's jacket that permits information to be written on the disk. If there is no write-enable notch, or if it is covered with a write-protect tab, information can be read from the disk but not written onto it.

write-protect: To protect the information on a disk by covering the write-enable notch with a write-protect tab, preventing any new information from being written onto the disk.

write-protect tab: A small adhesive sticker used to write-protect a disk by covering the write-enable notch.



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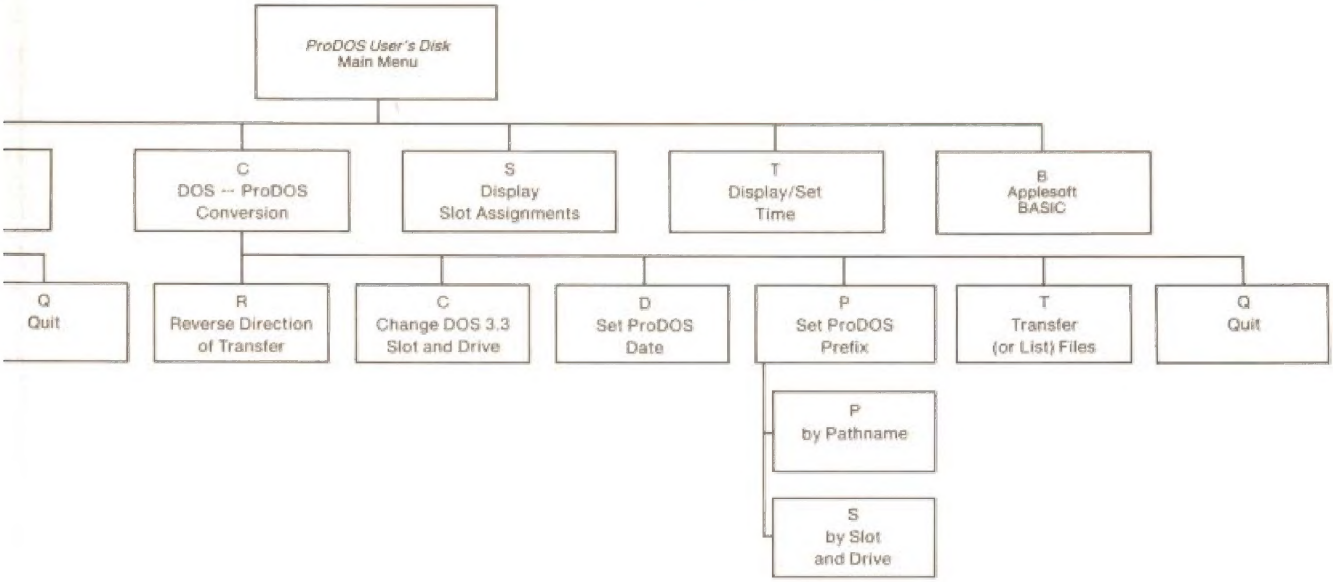
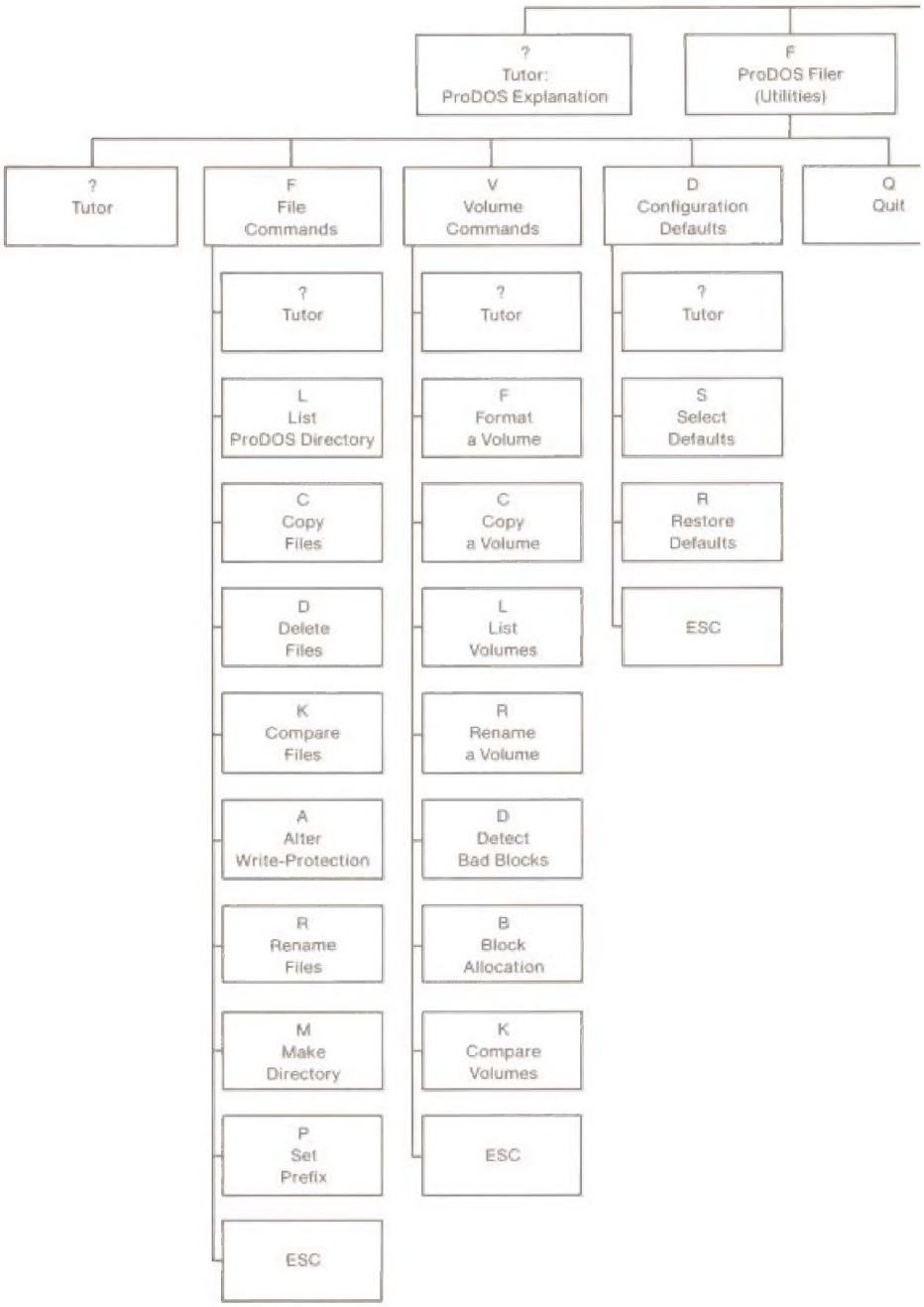


Figure 1-7. The *User's Disk:* The Big Picture



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